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Eighty-fourth Annual Meeting at Springfield, May 15, 16, 17, 1934

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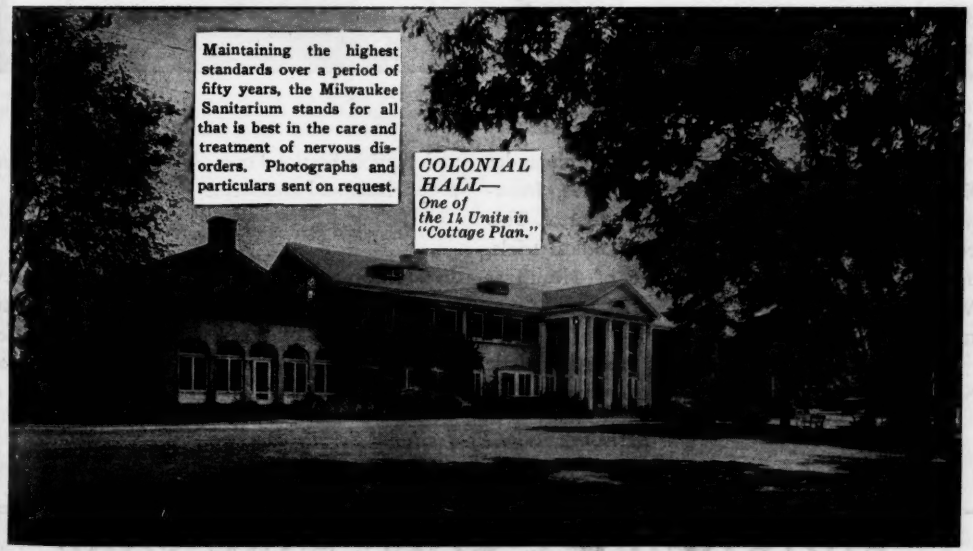
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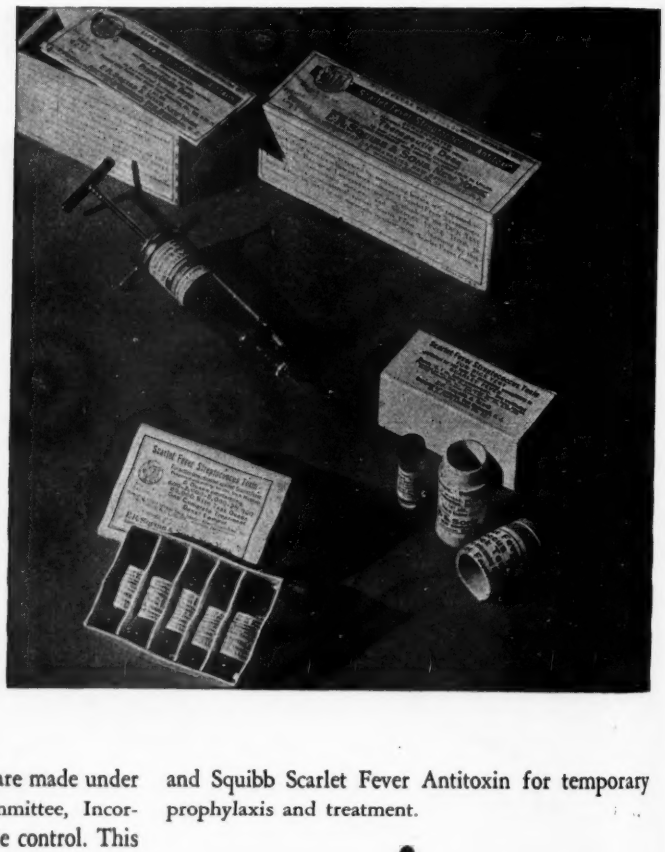

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Editorials

IF YOU WORK IN A PROFESSION, IN HEAVEN'S NAME WORK FOR IT. IF YOU LIVE BY A PROFESSION, LIVE FOR IT.

These are the days when a man takes stock of his investments.

A lot of gold ink and steel engraving in many a safety deposit box proves up to be only brass of a smart salesman, and pure slag as a sample of the brain that the medico had when he sank the few dollars he had managed to collect from a more or less ungrateful clientele into something "tangible" for his family.

There's one stock certificate that never mocks a doctor with depreciation or dirt. That is a doctor's investment in his *state society*. This costs a man but two cents per day in Illinois. If a physician uses membership in the state society as he should, he can count on a return of 1,000 per cent. *Can you beat that, doctor?*

Doctors are going to have to use the state society membership, and to make it work for them, or the state of the individual members of the medical profession is going to be worse than that of the man who had two chances at having the evils swept out of his house.

Unfortunately, membership in the state societies seems to be appreciated far more by those who have been deprived of that privilege than by those to whom such membership is a retained right by virtue of adherence to the Hippocratian oath.

No good doctor can afford to be anything but a good citizen. And no good citizen who is a good doctor, and the two are synonymous, can afford to lack membership in the state organization of ethical medicine acknowledged and honored by that commonwealth in which he or she resides.

Whether you agree or disagree with Gen. Charles Gates Dawes in all of his creeds and tenets and bylaws and wherefores you have sim-

ply *got* to admire the man for much of his sentiment and for many of his principles.

Young and *old*, doctors as a group should give "Hell'n-Maria" Dawes a salute for this keen, clean, good-American sentiment:

"If you work in a profession, in Heaven's name work for it. If you live by a profession, live for it. Help advance your co-worker. Respect the great power that protects you, that surrounds you with the advantages of organization, and that makes it possible for you to achieve results. Speak well for it. Stand for it. Stand for its professional supremacy.

"Hazard a guess as to what the present status of the individual physician would have been had he not been surrounded 'with the advantages of organization' during the days of our recent troubled past.

"The many and valuable advantages of membership in the Illinois State Medical Society appear to be known to but few members and undoubtedly are absolutely strange to every unassociated physician. The modern work of medical organization includes legislative protection and medico-legal defense for the practitioner, a central executive office where Service is found by both physician and the public, a constantly alert public relations program, a smoothly running machinery solving problems which could not be worked out by the individual physician, elimination of the pseudo and promotion of the ethical practitioner of medicine. Also the professional and educational advantages, including membership in the American Medical Association, the frequent scientific meetings, the post-graduate courses, and the state journal, as well as the economic protection against schemes perpetrated to defraud the gullible professional man.

"Aside from the advantages which mean 'something tangible' to a member of organized medicine, there is one great consideration which cannot be overlooked—a benefit which makes the non-member pay a costly price for his unorganized status. This is the good reputation with the public, the law, and the profession which the individual physician gains from association with the well recognized Illinois State Medical Society. These are not idle words. People are canny; they now look to the Society for all types of information on physicians. Amazingly, there is no exception. The veteran practitioner as well as the newest member of the profession is the subject of inquiry some time or other by the public, or by their confreres in medicine. Your ethical reputation demands that you help support the profession by which you live. In our state it costs but two cents a day, less than the tip you gladly extend to your luncheon waiter.

"Hold and value what you now possess. You can't afford the price of non-membership."

ULTIMATELY THE PHYSICIAN FINDS HIMSELF WHAT IS COLLOQUIALLY KNOWN AS "THE GOAT" IN EVERY HUMAN CRISIS.

Victims of "depression shock" and "depression neuroses" are ubiquitous in this distressed land of ours. Such men and women are in a fix as sorry as the shell-shocked men of the World War. Their mending must be of the mind as well as of the body.

Doctors may as well prepare themselves to be affected by this depression in the same way as they are affected by every other human woe or emergency. Ultimately the physician finds himself what is colloquially known as "the goat" in every human crisis. Physicians have seen their incomes diminish as steadily as snow by a hot sun. Yet their public economic responsibilities have increased as rapidly as have those of every honorable citizen. During the war, that terrible conflict that precipitated this terrific distress, doctors were at the forefront and came home to face conditions even worse than those of others who forsook all they held dear to fight for democracy. For while the physician was in the front line dressing stations and the field hospitals, communists and parlorpinks and misguided lay meddlers and politicians at home were sending the medical profession to the "damnition bowwows" in so far as they were able in spite of the preservative impediments put forth by those doctors who were too old to go to the front and fight. Now as the clouds are lifting somewhat the doctor faces still another bit of gross tonnage and tare weight.

Not the least terrible effect of the four year depression is the resultant human wreckage. Remember that it is "men who build the state." And of the men who have made our state the greatest within history there is an appalling number who can never again enter the economic

ranks. As a result of the depression's four long and weary years so many persons, both men and women, are so broken in mind and body by prolonged unemployment that they are unable to take jobs, even when these jobs are made for them. Four years of worry, grief, insufficient food, inadequate clothing and shelter have taken a toll that was inevitable.

Even if a percentage of these unfortunates are reclaimed they cannot have escaped permanent scars on their characters.

Every physician who has managed to survive has noticed how greatly personality problems have increased in the depression. Nervous disorders are rife. Thousands and thousands are run down physically from lack of nourishment. For a long time a great many who get jobs will be unable to make good on the job. Only too many men and women will be found to have an insufficient earning capacity to care for their families. One of the greatest tasks confronting the private relief agencies during the future will be the necessitated post-depression care aimed at rehabilitating these "depression-shock" victims among the bread-winners both according to their individual problems and with an eye to the protection of their children.

Doctor, you can see you have your work cut out for you in that difficult field of rehabilitating the despondent and the neurotic.

WE ASK THE STATE DEPARTMENT OF REGISTRATION TO ENFORCE THE MEDICAL PRACTICE ACT

At the meeting of the council of the State Medical Society in Springfield in January, a resolution was passed asking the State Department of Registration to enforce the plain provisions of the Medical Practice Act.

The resolution is as follows:

WHEREAS; The Practice of Medicine as a business by a corporation as legally defined has been declared illegal by the Superior Court of Cook County, even though the employees of such corporation be licensed physicians, and

WHEREAS; Professional connection or association with, or lending one's name to another for the illegal Practice by another of the treatment of human ailments as a business, or professional connection or association with any person, firm, or corporation holding himself, themselves, or itself out in any manner contrary to this "Act," is sufficient legal grounds for the revocation of one's medical license; and

WHEREAS; it is a matter of common knowledge that corporations are actively, openly and flagrantly violating the Medical Practice Act, as evidenced in part by extensive advertisements in the public press and over the radio, Therefore Be It

Resolved; that the Council of the Illinois State Medical Society call upon the State Department of Registration and Education to enforce, without fear or favor, the plain provisions of the Medical Practice Act.

DECLINE AND FALL OF THE NATIONAL BIRTH-RATE

As a nation, the United States dare not overlook the fact that a bit further along the road it is confronting the same precipice upon the brink of which Great Britain stands now. It is in fact a burning Caucasian question.

Foreign statisticians tell us candidly that the momentous fact maintains that after a century of extraordinary expansion "the population of England is rapidly approaching a maximum, and then an inevitable decline, attracts little notice."

The present birth rate is held insufficient to maintenance of present population, a condition prevailing we believe here in the United States or at least well on the way to such a tendency. (?)

Of the British situation before the Royal Sanitary Institute one of the statisticians, A. M. Carr-Saunders by name, pointed out that "the population of England will cease to increase in 1940, and possibly before then, and will subsequently decline. Since the Domesday survey, at the end of the eleventh century, estimates for every succeeding century show increases interrupted only by temporary catastrophes. It can be proved that the death rate will presently exceed the birth rate, and that the population will begin to decrease without any further decline in the fertility of married women—that is to say, in the size of the family. There is no longer 'a replacement birth rate.' The number of children born within the last five years, who in twenty years should form the 20-25 years age group, does not equal the number now in that group. Moreover, some of them will die before reaching the age of 20. The important point is that the population will cease to increase and will then

decline, even if there is no further decrease in the size of the family. But the size of the family decreases every year. If emigration were again to attain its pre-1929 level, a decline would set in before 1940. Emigration on this level from 1929 to 1940 would mean a drop of population by a million at the end of that period. He complains that there is a complete failure to appreciate the situation. He has seen plans which visualize a population during the next half century arrived at by projecting the continuance of the growth of the last fifty years. In one case a large expenditure has been incurred to supply water for a population that will never exist."

The *immigration* factor must be considered by American Statisticians but even that does not materially change the balance as to world population figures for the Caucasian race.

DE KRUIF AGAIN BERATES THE MEDICAL PROFESSION

It is doubted if the average physician of the United States makes half as much money out of the legitimate practice of his profession as do misinformed lay exploiters of medical men through their slanderous attacks upon medicine and its methods. These quacks of the quill are arrant charlatans of the written word whose actions call for summary treatment. Sooner or later some champion will rise in his wrath and slay enough of these literary jackals to put the fear of the truth into the craven judgment of the rest of them.

One of the most notorious of offenders in this direction is Paul De Kruif. His nefarious system is to seize upon a titular catch phrase that would make a fortune for any fake factory of pills and poultices, and, appealing to the neurotic emotions or the better sympathies of his readers, double damn the medical profession and pelt it with pails and pails of mud and muck.

Some years ago De Kruif cleaned up neatly on a series of article in the *Cosmopolitan*. Later he published a book on "Microbes." His stock of trade was and is microbes, but a month or so ago he found still another siding upon which to trundle his freight of misrepresentation.

No less highly esteemed a periodical than the *Ladies' Home Journal*, owned by the estate of the late C. K. Curtis, to whom Jefferson Medical College of Philadelphia owes its Curtis clinic—of its kind the finest building in the world—came out with one of De Kruif's deceiving knick-knacks. Under the title "Why Should They Go on Dying?" De Kruif demands the procedure of the collapse theory of tuberculosis for every tubercular patient, as it were, whether this treatment should be deemed necessary by his physician or not. Useful in some cases of tuberculosis, De Kruif seems to think that herein lies the panacea for all tubercular infections.

And because since he has heard of it—and that evidently only within the past few months himself this arrant bragadocist has the impudence to stand up and to charge the medical profession with "cowardice, ignorance and neglect;" he names only seven places in the United States where it is obtainable, though in Illinois alone it has been used as a routine procedure in scores of institutions for a quarter of a century. In addition, hundreds of Illinois physicians and surgeons have for two or more decades done, and are still doing, this work when it is indicated and advisable in cases of tuberculosis.

There is not a state in the Union where this operation has not been available for a quarter of a century in all institutions, and available at the hands of scores of private practitioners. An authority, commenting on the De Kruif article, says: "In North Carolina alone it has been used for nearly a quarter of a century, and in that state alone some twenty-five private practitioners and at least fifteen institutions use it as a matter of course."

It is understood that the present editor of the periodical named has refused to rectify some of De Kruif's most glaring misstatements. Some day De Kruif will be hanged by his own petard and the justice of this would be appreciated by the profession at large and should be applauded by the public whom this in our estimation incompetent medical critic would delude.

AN OPPORTUNITY FOR THE MEDICAL PROFESSION

The United States Government is promoting a "Child Health Recovery Program" for the relief and border line families. The object is to determine if there are in these families children suffering from insufficient food or from pathological defects which interfere with their nutritional welfare. This is definitely a medical prob-

lem and should be done under the leadership and direction of the State Department of Health and the Illinois State Medical Society.

Dr. Martha Eliot, in whose hands the Government has placed the task of promoting and organizing this work in the various states, has come to Illinois and asked the State Department of Health and the State Medical Society to take the responsibility of carrying out this program in the State.

When and if these bodies take over this responsibility, her work is finished. The Department of the Federal Government which she represents retires from the scene and stands ready to assist or advise when and only if invited to do so.

Here is presented a real opportunity for the members of the Society as an organization to lead and direct a piece of medical work, the like of which has always formerly been initiated, planned and executed by new or old lay organizations. Will the regular organization rise to the occasion?

The County Society will be the unit of the organization to carry on this program. The physicians are to furnish leadership and medical service. All examinations are to be made in the physician's office or such other places as the County Committee shall designate.

From the physician's standpoint, the program is based upon the effort to return all patients on temporary relief to their family doctor and reestablish that personal relationship between patient and physician. Local lay members of the County shall be appointed by the County Medical Society. The lay members will assist the physicians and through various local organizations arrange for the medical examination of the children by the physicians.

Whereas, the emergency program is to care for the indigent people on relief or near relief, the broader program comprehends the education of the self-supporting public to become more child minded and learn the importance to the health of the child, of systematic and periodic medical examination and supervision by the family doctor.

There will be no compensation for the initial examination in this survey for undernutrition in the child.

The following agreement has been entered into by the Illinois State Emergency Relief Commission and the representatives of the Council of the Illinois State Medical Society.

The following quotation is from the "Illinois plan":*

"Medical care under the regulations of the Illinois Emergency Relief Commission is to be furnished only to recipients of unemployment relief under a uniform policy which recognizes within legal and economic limitations, the traditional relationship existing between the physician and patient. . . . The service is strictly limited to meet conditions which are causing acute suffering; interfering with earning capacity; endangering life or threatening some permanent new handicap that is preventable. It provides for compilation of a list of physicians through local medical societies to which is added the names of other bona-fide medical practitioners who agree to the plan. Fees are based upon a flat-rate, i. e. not exceeding $1.50 for home calls or $1.00 for office calls, with a one way mileage allowance of 25 cents outside the corporate limits of the city where the physician resides and $20.00 for obstetrical service including pre-natal and post-natal care. Other fees are not to exceed 50 per cent. of the minimum ordinary charges to patients of similar economic status. Hospitalization is allowed only in extraordinary emergencies. Provision is made for the patient to select his own family physician if the latter has agreed to come under the plan, otherwise the local person in charge of medical relief shall designate a doctor from the list who may be one who lives near the patient. . . ."

The detailed program of this Child Health Survey has been formulated by a committee appointed by the Council and will be acted upon by the Council of the State Medical Society at its next meeting.

Surely this is an opportunity for the Medical Society to assume leadership. An opportunity to render valuable medical aid to the deserving public, an opportunity to acquaint the public of the value to the children of regular medical examinations and supervision.

*From the Bulletin of the Chicago Medical Society.

MEDICAL RELIEF—FOR EMERGENCY ONLY!

What medical relief is extended by the Federal government should be understood definitely as an *Emergency* relief measure only.

Anything else but that will be medical acceptance of still another chain in the fetters of bureaucracy.

A fundamental principle of major importance, and, with a lethal converse for the medical profession, is therein involved.

Doctors have not failed once in their civic

duty during this depression. In this reconstruction period many medical societies are entering into agreements with legally constituted relief societies and agencies, which agreements are intended to insure the provision of needed medical service to those, who because of unemployment, or because of other misfortunes resulting from the unfavorable economic situation are both unable to provide for themselves or to pay for required medical service. In every instance under these agreements, the physicians receive but very limited compensation. Even that is a godsend to many a doctor. Many physicians have exhausted all their resources by sustaining service, and disbursing medical care throughout the depression, for which they have all been paid but little, if at all. Such men can carry on no longer unless from some source there is some income derived. In accordance with the traditions of their profession these men have given both themselves and all their material possessions in the service of humanity.

"Experience is a dear teacher" but a teacher of great efficiency. The medical profession almost to a man is hoist by its own petard of service.

At the outset it should be distinctly understood just what is meant by this "Emergency relief" service, and the point maintained that it IS only *emergency relief* and that it *shall cease* when times resume even an *approximate normalcy.* Those medical societies, that enter into these emergency relief agreements, should act on the basis that when the emergency is passed that *these agreements shall be ended.*

So well phrased and excellently connoted are the ideas on this subject as projected both by the Ohio and the New Jersey State Medical societies that it is thought well to reproduce these here as well as a comment from the *Bulletin of the Academy of Medicine* of Cleveland, Ohio.

OFFICIAL STATEMENT OF COUNCIL OF THE OHIO STATE MEDICAL ASSOCIATION

Intimately identified and genuinely concerned as the medical profession is with all problems of public and individual health, social welfare, economic distress, unemployment, possible undernourishment and other factors inimical to physical well-being, human safety and comfort, the Ohio State Medical Association, representing the great majority of ethical and legally qualified physicians in Ohio, desires to cooperate with all official and voluntary agencies similarly concerned with these problems.

As an altruistic profession, physicians, in innumerable cases, have continued to care for the indigent sick and semi-indigent sick for so long that the matter has become a tradition. With the unusual situation at the present time a considerable portion of the public has come to look to the medical profession for this sort of service without any remuneration, in spite of the fact that the medical profession as a group requires economic support in relative proportion to other groups.

The situation is a public responsibility and should be remedied. On the other hand, physicians, in many instances, have not been receiving sufficient income from their total practice to make it possible for them to continue to carry the extra burden of the needy sick who are unable to pay.

As announced in Rules and Regulations No. 7 issued by the Federal Emergency Relief Commission "the policy adopted shall be to augment and render more adequate facilities already existing in the community for and provision of medical care by the medical, nursing and dental professions to indigent persons," and that "all fees shall be established on the basis of an appreciable reduction from the prevailing minimum charges for similar services in the state and local communities, with due recognition of the certainty, simplicity and promptness of payment."

We are further in agreement with the policy as announced by the federal government and approved by the State Relief Commission "to recognize within legal and economic limitations the traditional family and family-physician relationship in the authorization of medical care for indigent persons," and with the further principle of endeavoring to preserve, as far as possible, the "free choice" by individuals in the selection of physicians.

Since the issuance by the State Relief Commission of Ohio of its Supplement No. 1 to Federal Rules and Regulations No. 7, under date of Sept. 20, 1933, establishing a temporary plan for emergency medical care to the needy unemployed, numerous problems have arisen. It was, of course, recognized that the amount of federal-state funds available for distribution by the State Relief Commission to local communities was limited, and that these funds would be inadequate to provide necessary medical care. We appreciate the cooperative spirit of the State Relief Commission and the State Director of Health in wishing to make available as promptly as possible those funds that could be distributed for this purpose in Ohio.

We find, however, that in some communities there has been a tendency to utilize the inadequate fee schedule proposed by the State Relief Commission as a "pattern" or gauge for general medical services, in spite of the fact that the State Relief Commission has specifically stated that "these fees are not intended to establish such low rates in ordinary practice."

It is estimated in many communities that the "overhead expense" to physicians in rendering service to patients is at least 50 per cent of the ordinary fees

collected. As the suggested fee schedule proposed by the State Relief Commission is in many instances less than one-half or even one-third of the ordinary fees, physicians are confronted with the problem of continuing to render medical care to the needy at a definite financial loss.

It is our opinion that on account of the widely varying local problems and conditions peculiar to each community, it is impractical and not feasible to apply a standard fee schedule for the entire state, which, if attempted, will lead to misunderstandings and difficulties. It is our desire to aid in meeting the present medical emergency relief requirements, and for this reason we feel that certain adjustments and modifications are necessary.

It is our recommendation, therefore,

1. That the temporary plan and fee schedule proposed by the State Relief Commission in its announcement of Sept. 20, 1933, to local relief officials be abandoned, and that in each community which is receiving or is entitled to receive federal funds for "relief," the State Relief Commission apportion on the basis of the needy population the proportionate share of such funds to which such communities are entitled, without a definite stipulation as to the amount of the fees for each case served, but with the definite understanding that the general regulations and limitations under which such funds are distributed be adhered to strictly;

2. That the relief officials in each community, after official local conferences and *agreements*, with representatives of the county medical societies, establish fee schedules applying in such communities for services to the indigent and the needy unemployed at approximately two-thirds of the customary fees, with due consideration for customary fees in each community, with proper differentiation between fees for house calls and office service, and with proportionate differentiation between day and night services, mileage, distance and difficulty in reaching patients.

3. That the proportion of the federal-state funds available be supplemented by local funds on which to base such local agreement of fees in accordance with the proviso in Federal Regulations 7 to the effect that "this schedule (fee schedule) shall only apply where the expenditure of federal relief funds is involved and shall *not* preclude the payment of additional amounts from local funds";

4. That in case of injuries or disabilities not contemplated under ordinary house or office calls, the schedule of fees under the Workmen's Compensation Law with the present 20 per cent discount be the prevailing fees for such services to the needy;

5. That in those communities where federal-state funds are not available, the principles set forth in this statement shall be adopted through conferences between representatives of the county medical societies and public officials, particularly those principles pertaining to the preservation of the family and family-physician relationship and the "free choice" by the patient of his medical attendant;

6. That in view of the fact that the "relief" program is *emergency and temporary*, the medical profession in each community, through its official county society or academy of medicine, have equal authority with the public officials or local relief commission to determine when such emergency and temporary plan shall end, at least so far as medical service is concerned;

7. That it be clearly understood that any fee schedule adopted, approved or in effect locally shall apply only for medical services to the indigents or needy unemployed *and during the term of the present emergency*.

It is agreed by the Council of the Ohio State Medical Association that this statement and report be transmitted promptly to the State Relief Commission for its information, and to the secretaries of the county medical societies and academies of medicine for their information, guidance and comments.

NOT ALL IS GOLD

The plan of compensation offered by the County Relief Administration will be welcome to some members of the profession, but most physicians will recognize in the plan potential dangers.

It is proper that the chronic pauper who is with us in good times and bad be a charge on the community, and it is proper that the physician be recompensed in some manner for his care. To include the temporarily indigent families in the same category, however, greatly complicates the picture. In the first place, the latter group is so large that any real attempt to pay for medical service on even the minimal fee schedule established by the government will quickly exhaust the available budget, and will prove an added burden on the already heavily laden duplication of taxes, for these funds must in the end come from taxes. In the second place, the participation of the government in the practice of medicine and in establishing fees, even in this small way, has dangerous potentialities and may pave the way for greater participation of the government in the practice of medicine in the future. From time immemorial it has been recognized as the physician's privilege and duty to care for the needs of his patients, whether in times of prosperity or want. This idealistic interpretation of our obligation to the public has always worked to the best interest of both patient and physician. In the third place, the way is open for the less conscientious physician to capitalize on the plan, to the detriment of his patients of the indigent class and to the discredit of the profession.

These objections have been minimized but not eliminated by the modification of the plan approved by the Academy. We prefer to look upon the plan as an emergency measure which will bring temporary help to members of the profession who are seriously in need of it. We would expect the majority of the profession, less in need to continue caring for their indigent families, as they have in the past, without expecting remuneration.

Whether we participate in the new relief plan or whether we do not, we will continue to give to our patients, be they rich or poor, the best professional serv-

ice which we are able to offer. As long as we do this, the future holds little danger for our profession.

D. M. G.

—*The Bulletin of the Academy of Medicine of Cleveland, November,* 1933.

EMERGENCY RELIEF IN NEW JERSEY

The Medical Society of New Jersey, through a committee under the chairmanship of Dr. Spencer T. Snedecor, and the New Jersey State Emergency Relief Administration have developed a plan for providing medical service for persons whose names appear on the lists of the E. R. A. The plan, approved by all of the county societies of the state, is presented in the *Journal of the Medical Society of New Jersey* as follows:

THE PLAN

Preamble

In accepting this opportunity to cooperate with the E. R. A., the medical profession acknowledges its responsibility first and foremost to provide the best possible medical care to the indigent poor of New Jersey; and, secondly, to the profession itself to promote and safeguard its interests.

Several broad principles may be enumerated:

(1) The medical society enters into this plan for the period of the emergency only and it shall have the power to designate when the emergency is over.

(2) The control of the administration of the medical relief shall reside with the society through its designated state and county committees.

(3) The present and future policies shall be subject to the approval of the society.

(4) The preservation of the personal relationship between the doctor and patient shall be paramount.

(5) The fee schedule in general shall be on a basis of about two-thirds the customary fees.

(6) The payment of fees shall be arranged on as simple and easy a basis as possible to facilitate collection by the doctors.

(7) It shall be agreed that medical relief shall be supplied by the individual physicians, preferably by the patient's own or previous physician, and shall insure free choice of physician by the client.

(8) Clinics shall not be formed except as approved by the Medical Relief Committee of the State.

(9) It shall not be the policy to develop and centralize medical care in the hospitals or clinics except in so far as special diagnostic and treatment aids are needed.

(10) The E. R. A. shall not pay physicians for work in clinics; nor shall it pay hospitals for admission clinic charges.

(11) It shall not be the policy of the E. R. A. to substitute midwives for physicians in obstetric cases.

(12) Problems will arise in some counties requiring special recognition and treatment.

It is recognized that there are grave dangers inherent in this plan, such as the development of a bureaucracy both in the medical organization and the E. R. A.; that favoritism to certain physicians may develop; that unethical practices must be watched.

The designation of who shall receive medical relief as provided by the E. R. A. is primarily for the E. R. A. to decide. However, the Medical Relief Committee of the State may make suggestions.

That the medical society enter into this plan for one year or for the emergency only.

Organization

The organization of Medical Relief shall be as follows:

A Medical Relief Committee to be known as the Medical Relief Committee of the State Society shall be organized and assigned the following duties:

(1) To formulate policies and plans in cooperation with the E. R. A.

(2) To carry on a close liaison with the E. R. A.

(3) To organize a subcommitee in each county to be known as the Medical Relief Committee of the County.

(4) To act on all complaints or requests from either the E. R. A. or the county committees.

(5) To gather as accurate reports as possible of the work in each county.

(6) The district councilor on the commitee shall act as organizer and supervisor of the work in the counties in his district.

Medical Relief Committee of the County

(1) Shall be appointed in each county.

(2) Shall organize to supervise the work in each county in cooperation with the County Relief Administration.

(3) Shall maintain at all times direct control over the Medical Relief.

(4) Shall have power of approval or adjustment of bills, such as those objected to by the E. R. A. as being exorbitant, false or technically incorrect.

(5) Shall have frequent contact with the E. R. A.

(6) Shall secure monthly reports of the amount of work done, bills presented, bills paid, doctors receiving payments and amounts, and any other pertinent information.

(7) Shall be zealous to provide the best medical care—cooperate with the other health organizations, particularly nurses.

Note to the Officers of the County Societies

To the Presidents and Secretaries of the County Medical Societies:

The Medical Relief Committee of the State Society submits herewith a memorandum of an agreement entered into with the State Emergency Relief Administration which outlines the practices to be observed in taking care of Emergency Relief clients.

In reading this plan you will observe that we have agreed to set up in each county a Medical Committee to be known as the Medical Relief Advisory Committee of the country to cooperate with the Country Director

in order that the principles set forth in this plan may be started in operation.

The Committee, therefore, requests you to take the following immediate steps:

(1) The County Society shall appoint or elect a committee of not less than 5 members to be known as the County Medical Relief Advisory Committee.

(2) This committee shall immediately prepare for submission to the County Director a list of licensed physicians within the county who are willing to accept Emergency Relief cases.

(3) The committee shall contact the County Director of Emergency Relief at once to arrange a fee schedule for the Emergency Relief clients.

(4) While the maximum fees of $1 for an office call, $2 for a house visit, and $25 for an obstetric case have been agreed upon, the rate for your individual county shall be based upon a proportion of from one-half to two-thirds of the prevailing average fees in your county.

Several parts of the plan are worthy of special attention:

The doctors shall strive to take care of the clients in the home and shall only refer them to the hospital for emergency conditions.

The method of submitting bills should be carefully studied and it should be noted that no cases shall be charged to the Emergency Relief Administration unless properly authorized.

It will be necessary to inform every member of your society about the details of the plan and it will be published in the next issue of the State Journal. (See Aug., 1933, Journal, pages 591-593.)

The committee stands ready to assist in any way possible to help in organizing or to smooth out troubles which may arise. We have promised the Emergency Relief Administration the wholehearted cooperation of the profession.

(Signed by members of the Committee of the Medical Society of New Jersey.)

DR. COLWELL'S DAILY LOG FOR PHYSICIANS

A daily service of genuine helpfulness to every physician and a sine qua non for a bird's eye view of a medical man's daily financial condition is presented in the "Daily Log" for physicians issued by Dr. John B. Colwell of Champaign, Ill., and published by the Colwell Publishing Company.

For a number of years this volume has been a first aid to every busy doctor and his pocket book. Since first put out it has been subjected to yearly revisions and annotations though the general principle remains the same. "The Log" is just what its name says it is. Here is a daily financial record that is a brief, accurate, easily kept practical accounting system with daily, monthly and yearly totals, and monthly summaries and balances of income and expenses. It is *not* a ledger. To make a complete accounting system, a ledger must be run with it as the ledger is necessary for gathering together separate items of an individual account. However, this "Daily Log" is about the best thing that a busy man can have. It is easily kept by any intelligent office assistant and shows the physician the progress of his business day by day, and at the close of the year sets forth the basic figures needed for the income tax return.

Though not a clinical record there is a "Service Rendered" column for brief annotations of clinical facts.

Containing over four hundred pages, the ledger provides a separate page for the transactions of each day of the year with extra spaces for monthly and annual summaries, expense tables, special records, and incidental memoranda. The volume is not to be confused with the small or pocket-size diaries often furnished for physicians' records, since each page offers sufficient room for the recording of thirty-two patients per day, tabulating the service rendered and the financial account accompanying the transaction. Where fewer patients are seen, the additional space may be readily utilized in recording prescriptions given or essentials of the physical examination. The system is built on a loose leaf plan and durably bound in fabricoid. This is the best and most compact financial record which has come to our attention.

A CONTRACEPTIVE LAW BEFORE CONGRESS

Physicians and medical societies throughout the United States, no matter which side they take on such a highly controversial subject, are watching with interest proposed legislation before the Seventy-third Congress calling for amendment of the present federal birth control laws. These amendments, commonly known as the "Doctors Only" bills, are Senate Bill 1842, sponsored by Senator D. O. Hastings of Delaware, and House Bill No. 5978, introduced by Representative Walter Pierce of Oregon.

The proposed new bill provides as follows:

". . . that Section 211 of the Penal Code of the Federal Statute shall be amended that it shall not apply to the mailing, delivering, or receiving

of any written or printed matter concerning the prevention of conception, or of any appliance, drug or thing adopted or intended therefor, as between lawfully practicing physicians and their bona-fide patients, duly licensed druggists, importers or exporters of medical appliances or drugs, manufacturers thereof, wholesale dealers therein, and medical publishers and scientific books and reprints therefrom, provided such mailing, delivering, or receiving is in the due and proper course of such profession or business."

This proposed legislation would amend the existing federal restrictions so as to legalize the sending or receiving of contraceptive information, instruments and medicines between physicians and their patients, medical colleges and hospitals and from physician supply houses and manufacturers.

Under the present statutes, penalties of heavy fines and imprisonment may be inflicted for transporting any article intended for the prevention of conception or receiving for distribution to others any such article that has been transported interstate or by the Government mails. For several years there has been a controversy as to the propriety of the present Federal legislation, as there are many who contend that the Constitution does not grant the power of law to abridge the right of the physician to protect the life and health of his friends and patients.

The sponsors of the "Doctor Only" bills merely seek to place the responsibility for prescribing contraceptive action where it rightfully belongs—in the hands of the medical fraternity.

Leading doctors also contend that this change in the statutes will greatly aid in the proper care of cardiac, tubercular and diabetic patients where pregnancy is contra-indicated and where conception would necessitate a therapeutic currettment.

The far-reaching importance of these bills is daily becoming more apparent to American physicians. The passage of these laws will depend largely upon the expressions received from the physicians, and there is yet time to express such views to their Congressman or the Senator and Representative mentioned above who are sponsoring these bills to amend the present laws for the interest and protection of the medical profession.

DOCTORS DESIRING TO PRESENT PAPERS AT 1934 ANNUAL MEETING.

Members of the Illinois State Medical Society desiring to present papers at the 1934 Annual Meeting to be held in Springfield, May 15, 16, 17, 1934, should get in touch with the proper section officers as soon as possible.

Owing to the large membership of the Society, it is desirable to place members on the program each year who have not appeared in recent years.

The number of speakers at the annual meeting for each section is limited; consequently it is desired that all papers should be of interest to the members in general. Any member desiring to make a presentation at the annual meeting in any of the five scientific sections should write the Section Officers, giving the title of the paper, and an abstract of the same. If interesting case reports are desired to be given, tell briefly about the case of unusual interest, in making application for the place on the program.

It is the desire of all officers of the Sections to make the 1934 Annual Meeting program an outstanding one, and arrange it to the best advantage of all members. On Thursday morning, the last day of the meeting, it is planned to have a joint session of all five scientific sections, and present papers which will be of interest to all members regardless of their own special inclinations in practice.

Members desiring to make a presentation of either a paper or interesting case report, should get in touch with the proper Section Officers at an early date. The officers of each Section are herewith given.

Section on Medicine

R. F. Herndon, Chairman, Springfield.

Don C. Sutton, Secretary, 30 North Michigan Blvd., Chicago.

Section on Surgery

George W. Post, Chairman, 4010 West Madison Street, Chicago.

B. V. McClanahan, Secretary, Galesburg.

Section on Eye, Ear, Nose and Throat

George S. Duntley, Chairman, Macomb.

O. B. Nugent, Secretary, 231 West Washington Street, Chicago.

Section on Public Health and Hygiene

J. Howard Beard, Chairman, Urbana.

Lloyd Arnold, Secretary, 1817 West Polk Street, Chicago.

Section on Radiology

Robert F. Arens, Chairman, 2839 Ellis Avenue, Chicago.

F. Flynn, Secretary, Decatur.

SOME OBSERVATIONS ON COPY

Many papers for the annual meeting will soon be in preparation. The following suggestions are submitted to promote uniformity and save time and labor on the part of authors, editors, printers, and others involved.

Paper and style: All copy should be submitted on standard size white paper, 8½x11 inches and double spaced. Page to be blank 1½ inch top and left side; 1 inch on bottom and right side. Copy to be original, not carbon.

Title, author: Title of paper, author's name and city address should appear in order stated at top of first page; author's street address at end of article.

The contents of paper should be in the best possible style and turned over to the official reporter with the distinct understanding that proof will be submitted to authors for the correction of *typographical errors only.* If changes from copy are desired they will be made at *author's expense.*

Spelling: Spelling as in Stedman's Medical Dictionary is considered standard. He does not recognize such barbarisms as oedema which he calls "variant," nor have we adopted the short form of though, thorough, etc., even if some lexicographers have.

Bibliography: References to literature should appear in numerical order in the text and the bibliography should be collected at end of article with the same numbered references. It is rarely necessary to write names of medical journals in full. (J. A. M. A.)

Illustrations: All cuts required for illustration are furnished at *author's expense.* Clear photographs and wash drawings can be reproduced in halftone cuts; line drawings in zinc etchings. Minimum size halftones cost about $4 each; minimum etchings about $3. *Negatives* of radiograms, either glass or film, are not acceptable; *prints* should be submitted.

If above suggestions are considered "finicky" they are based on the regular routine of competent offices. Compliance will save time, labor and expense for all concerned.

DEATH OF DOCTOR ROYAL THARP

WHEREAS; Death has removed from our ranks one of our esteemed Colleagues and Brothers in Medicine, Dr. Royal Tharp, who died December 21, 1933, and

WHEREAS; we realize the Society, the profession, the family, and the community have suffered a great loss, be it

Resolved by the East St. Louis branch of the St. Clair County Medical Society that we deeply mourn this loss.

Dr. Royal Tharp was a valuable member of our Society, a physician who devoted his untiring efforts to his patients and a citizen of whom East St. Louis could be proud.

Resolved; that these resolutions be forwarded to his family as a token of respect to his memory. Be it further

Resolved; that these resolutions be placed on the minutes of the St. Clair County Medical Society, East St. Louis branch.

T. VAN BOYD,
J. G. BEYKIRCH,
A. M. ASZMANN,
Committee.

ROLE OF PHARMACOLOGY IN DEVELOPMENT OF IDEAL ANESTHESIA

C. D. Leake, San Francisco (*Journal A. M. A.*, Jan. 6, 1934), states that in the development of ideal anesthesia pharmacology must play a major part, particularly in the critical appraisal of the relative merits of new chemicals proposed for use in anesthesia. Significant advance may follow studies on the relation between chemical constitution and biologic action (biochemorphology). Such a possibility is already promised for inhalation anesthesia by observations on the cyclohydrocarbons, unsaturated ethers, and halogenated unsaturated hydrocarbons, and especially for preanesthetic hypnotics and local anesthetics by a variety of chemical types. Unfortunately, commercial considerations have largely dominated this field, so that proper pharmacologic data on new drugs, especially relating to toxicity and efficiency in comparison with related or commonly used agents, have not usually been furnished physicians to enable them to judge whether or not the new drugs are worthy of clinical use. Such data may advantageously be secured by cooperation with university medical laboratories. Loevenhart proposed a cooperative therapeutic institute for obtaining data of this sort under ideal conditions but unfortunately commercial houses were unwilling to establish and support it.

MEDICAL ECONOMICS

At the request of the Council of the Illinois State Medical Society, the Committee on Medical Economics is starting this column to be devoted to subjects of interest to the medical profession of Illinois, in an economic way, as well as acting as a clearing house for the members. We want the members of the Illinois State Medical Society to feel free to write to the chairman of the committee, Dr. E. S. Hamilton at Kankakee, Illinois, for information on any phase of the economic question. He will forward the inquiry to the proper person so that the writer will receive authentic information on the desired subject, if the same is available. Each month some one or two questions of especial interest will receive special attention on this page, together with announcements of developments during the past month on subjects of economic interest. Be sure and include an addressed stamped envelope with your letter, so that there will be no mistake or delay in returning an answer.

The committee at the request of the Council has sent out during the past month, a questionnaire to all the physicians of four counties in the state, namely Pulaski, Franklin, Livingston and Winnebago. These counties were selected respectively as typical farming in southern Illinois, Mining, Farming in Central Illinois, and Industrial in Northern Illinois. Each doctor of these counties will receive a brief questionnaire, the object of which is to find out how great a change has occurred in the work done, the cash income and the net income derived between the years 1929 and 1933. Also an attempt will be made to find out how much charity work is being done. Charity work must consist of work for which no charge is made and must be differentiated from work charged for but uncollectible. A prompt reply to this questionnaire will be of great help to the committee in formulating a report for the annual meeting as well as having definite information to give to the Emergency Relief Commission as to the amount of charity work the physicians of Illinois do each year. The co-operation the committee receives will determine the degree of interests of the profession of Illinois in such subjects and accordingly whether or not the vast amount of work required to accomplish results is worth while.

The committee believes that this information can be obtained at the nominal expense of printing and postage. This is very different from some other states such as Michigan where $15,000 was expended in 1932 and 1933, with an additional $10,000 for this year. An exhaustive report like the Michigan one is nice, but will not give us much more information than that the committee hopes to compile, but the overhead will be entirely eliminated in Illinois.

If the response to this initial questionnaire is sufficient to warrant a continuation of the method, a tentative plan is ready to obtain similar information from representative men all over the state. However, this will not be started until the first one has been completed.

Again, the committee wants to remind you to send your letters to the chairman of the committee, Dr. E. S. Hamilton at Kankakee, Illinois, with a self addressed stamped envelope enclosed. Also that all of the members in Pulaski, Franklin, Livingston and Winnebago counties send in the questionnaires completely and accurately filled out at once if they have not already done so.

E. S. HAMILTON,
Chairman Medical Economics Committee.

Correspondence

RADIUM SHIPMENT WORTH SIX THOUSAND DOLLARS IS LOST

Quincy, Illinois, January 29, 1934.

To the Editor:

On January 16, 1934, we sent fifty milligrams of radium in the form of four monel metal needles measuring 27x1.75 millimeters in diameter, each containing twelve and one-half milligrams of radium to Donald D. Stoner, M. D., Flatonia, Texas. This radium was delivered to the main post office in Quincy and dispatched special delivery insured mail going via St. Louis.

The package has never reached Flatonia and therefore has evidently become lost in the mail. We are therefore, anxious to give as much publicity as possible to the loss, thinking that it may aid in some manner to the discovery of just where the radium may be. We will appreciate, therefore, if you will give this loss some publicity in the columns of your journal, publishing this notice as promptly as possible.

QUINCY X-RAY & RADIUM LABORATORIES.
Harold Swanberg, M. D., Director.

DOCTOR NELSON CORRECTS ERROR

To the Editor:

There is a glaring error in my article which appeared in the January, 1934, issue of the ILLINOIS MEDICAL JOURNAL, page 44, last sentence in the last paragraph in the first column. This reads: "They believe that the actual production of pollen is often greater than this, and conclude that hundreds of tons of ragweed pollen are suspended in the air over Chicago in a *single day* during the height of the season."

This should read: "They believe that the actual production of pollen is often greater than this, and conclude that hundreds of tons of ragweed pollen are suspended in the air over Chicago in a *single season.*"

Very truly yours,

T. NELSON.

THE GOVERNMENT'S PROGRAM IS A STEP IN THE DIRECTION OF SOCIALIZATION OF MEDICINE.

Recently the *Peoria Journal* under the title, "Aiding the Profession," said editorially:

"Turning to the relief of the professions, the Federal government is working out a program by which it hopes to aid physicians and surgeons by paying for the medical care of the unemployed.

"Doctors who view with apprehension the possibility of the socialization of medicine in the near future will get little comfort from the government's program. For it is a step in that direction.

"The government plans to establish clinics in the various counties. Doctors wishing to cooperate will register with the relief commission and will be called in rotation to care for the indigent who need medical relief.

"Each physician or surgeon will be permitted to charge a specified percentage of 'normal' fees, probably less than half and possibly as low as a third. His bill will be paid by the Federal government.

"Some objections to this plan are clearly apparent. Patients will have no voice in the selection of doctors. The clinics, being operated by political appointees, probably will not pay much attention to the specialized ability of the doctors. The entire standard of medical care is likely to decline.

"Moreover, trained professional men are being asked to cut their prices. If the government can buy the services of a physician at one-third of the present day cost, paying patients would be justified in asking a similar reduction. If the doctors are worth hiring at all, they should be worth standard rates for the service in their communities.

"The government sets an ominous precedent in asking professional men to reduce their fees, while paying laborers more than the union scale in many cases."

GOOD WATER

The family doctor is neither an engineer nor a chemist, but he is vitally interested in what others are doing for public health. The subject of sewage disposal is rarely encountered in our professional discussions, yet it is of vital importance to our health and welfare. Every city and village is responsible for the maintenance of proper sanitary conditions within the area of its jurisdiction. It should, therefore, furnish general supervision over the operation and maintenance of all local installations for the disposal or treatment of polluting wastes in order that effective results may at all times be secured.

In small communities sewage disposal is grievously primitive, insanitary and definitely dangerous to public health, and in rural districts sanitation is often unspeakable. Each year during the spring rains and the rising rivers wide areas are inundated, privies and stables are flooded and the filth is washed out upon walks and roads over which people must travel and work. This annual broadcasting of disease goes on in many districts, and with the increasing popularity of swimming pools, tourists' camps and recreation centers it becomes a public menace which demands adequate and prompt collection and disposal of sewage everywhere.

Emptying untreated wastes into the river (water carriage) relieves the local community, but it ravages and destroys miles of natural river beauty, replaces clear, sparkling streams with black, foul smelling, scum covered open sewers, the banks of which are filled with dirty sludge from which putrid gases escape. The normal clean stream plant and fish life is replaced with gray growths and slime. Typhoid fever and

dysentery germs multiply here, and people who camp beside, bathe in, or otherwise consume its waters are subject to epidemic disease, and, furthermore, our milk supply, upon which we so much depend is jeopardized when the cattle pasture along its banks.

There are less than 200 municipal sewage treatment plants in Illinois, thus evidencing that we do not yet realize the danger in our midst. If our wastes are treated so as to remove the solid and dissolved matter, and destroy the virulent bacteria it may then be discharged into a flowing stream without causing sludge covered banks emitting foul effluvia to assail our nostrils and endanger our health and lives. It is therefore imperative that every doctor actively interest himself and herself in adequate sewage disposal that this ever present health hazard may be removed. Don't be "asleep at the switch." If your community is discharging its untreated sewage into a river apply the "Golden rule" to your neighbor down stream and work for a sewage reduction plant and a water supply that is not only safe to drink but clear, cool and attractive to the eye and taste. Not one so polluted that fish commit suicide by entering it. Pure food, pure water, and pure air are essentials. The food and air may come from great distances, but the water (neglecting rain water) must come from some nearby source, frequently so near that it receives the pollution from the cities and industries. We expect and demand that water be given us that is pure and palatable. Nothing short of this should be considered as the solution of the problem.

Public Policy Committee,
Illinois State Medical Society.

EMERGENCY MEDICAL CARE AVAILABLE UNDER ILLINOIS EMERGENCY RELIEF COMMISSION

Illinois Plan

For the emergency medical care of the recipients of unemployment relief by funds made available by the Illinois Emergency Relief Commission.

Summary of Rules and Regulations

1. "The Federal Emergency Relief Administration by its Rules and Regulations governing medical care provided in the home to recipients of Unemployment Relief, states that the conservation and maintenance of the public health is a primary function of Government and sets forth certain considerations by which to discharge this function while providing adequate medical care to those in need and at the same time conserving available public funds.

2. "These regulations emphasize that Federal Relief Funds may be used for payment of medical attendance and medical supplies for those families that are receiving relief and while stating that Federal funds may not be used for payment of hospital bills nor general institutional care, it says that state or local funds might be so used.

3. "Medical care for the unemployed, under these regulations, is to be furnished under a uniform policy formulated by the relief administration in consultation with the organized local and/or State Medical profession. This policy recognizes within legal and economic limitations, the traditional relationships existing between the patient and physician, and provides that members of this profession furnish to indigent persons the same quality of service given to a private patient.

4. "The policy contemplates making more adequate the existing medical facilities and implies continuance of the use of hospitals, clinics and services already established and paid for by local, State, Federal or private funds in accordance with regulations, statutes, ordinances or charter provisions.

5. "Under this program medical care is to be provided on the basis of:

1. Written authorization on regular relief blanks.
2. Specified number of visits in each case for acute and chronic illnesses.
3. Specific service in obstetrical cases.
4. Utilizing the services of a competent, graduate nurse, either on the staff of the County Committee or through cooperation or loan, to make investigations relative to the illness or disability of the patient and to assist in carrying out physicians' instructions.
5. Limiting any service to meet conditions which are causing acute suffering; interfering with earning capacity; endangering life or threatening some permanent new handicap that is preventable through medical care.
6. Payment of fees (when necessary to be paid) from relief funds at a flat rate; each visit; each confinement; all of which are to be provided at a reduction below the usual minimum fee, with an agreed maximum and a differential between home and office visits. All bills are to be presented under specific instructions.
7. Providing drugs that are to be the less expensive variety, assuming they have the same therapeutic effect and restricted to be approved formularies and are to include no patent medicines. The prescribing of only such drugs used in the care of indigents which are contained in the United States Pharmacopeia and the National Formulary.
8. Making each local Relief Administration responsible for the adoption of these programs as well as for their formulation within the provisions of the rules and regulations, and the State Emergency Relief Administration is to insure, by giving or withholding approval, that all parts of the program

are in harmony. Advisory Committees are to be appointed by the Presidents of State and Local medical organizations. The Committees are to assist in formulation of adequate programs, the adoption of which shall be a responsibility of the Relief Administration.

9. The program which follows is intended to cover only the medical relationships, except where pharmaceutics and hospitalization are a necessary part of the physician's services. Separate plans will be developed and announced later respecting dentistry, nursing, hospitalization and pharmaceutics.

PROGRAM FOR MEDICAL CARE

"This program, providing for emergency medical care of the unemployed indigent, shall be in effect in the State of Illinois for 90 days after its approval by the medical organizations and the Executive Secretary of the Illinois Emergency Relief Commission, but may be continued thereafter. It shall be subject to revision within this period by the Illinois Emergency Relief Commission in consultation with the Advisory Committee from the Illinois State Medical Society. Such revisions shall be understood to automatically revise in the same particulars whatever understandings will then exist between County or local medical societies and local relief committees.

Organization of Advisory Committees

1. "Under authority of these Federal regulations, the Illinois State Medical Society has appointed a committee which has expressed to the Illinois Emergency Relief Commission its complete accord with the regulations, and has further suggested a fee schedule and has proposed to each county medical society the formation of an advisory committee on medical care.

Proposed Administrative Program

1. "Several basic considerations underlie the development of this program—among these are, permanent value to the Community, immediate efficiency in distribution of medical relief and care, variations between communities and counties and the securing of the highest quality of medical service with the funds available.

2. "To develop and operate a sound medical care program requires, under these and other considerations, clearly phrased, reasonably flexible, but quite specific regulations. Bulletins covering the procedure, regulations and technique will follow from time to time. This service, organized as a separate department known as Medical Relief Service, with a department director, shall be under the direction of the Illinois Emergency Relief Commission and directly responsible to the Director of Social Service. Authority for operation of this service shall, within any county, be vested in the County Emergency Relief Committee and shall be expressed through a supervising social worker on the staff of that Committee.

General Policies

"The following general types of medical care should be considered by the County and local Committees:

A. Care of the acutely sick in
   (1) their own homes
   (2) hospitals
   (3) ambulant sick who are acutely ill, either in their own homes or doctor's offices, or in clinics
B. Obstetrical and maternity care, including
   (1) pre-natal care
   (2) post-natal care
C. Care of the chronic sick in
   (1) their own homes
   (2) clinics
   (3) office of physicians
D. Care of the tuberculous in
   (1) their own homes
   (2) clinics
   (3) office of physicians
E. Preventive medical services, which are, of course, the function of the regularly constituted governmental authorities and of volunteer agencies as well as the medical profession.

SPECIAL POLICIES

County and Township Physicians

1. "The types of cases usually referred to physicians who are paid by or engaged for county or township or local authority may continue to be so referred, provided the medical society committee and representatives of the Commission feel that such physicians are competent and able, from the point of view of facilities and number of patients, adequately to meet the problem.

Eligibility of Patients

2. "No cases should be referred for paid medical care that are not at that time on the relief lists, unless investigation discloses eligibility for medical relief.

Family Physician Credit

3. "With respect to other patients, efforts should be made:
   (1) to refer such patients to the family physician for free treatment, or for credit given by such family physician, provided the physician agrees to give the necessary care.
   (2) In the event that credit for free treatment cannot be granted by the family physician, then the patient may be referred on a fee basis and still continue weth his own physician, provided that such physician has elected or does elect to participate in this program. In other cases, the patient may choose a physician, or have one selected for him, from the list hereinafter indicated, who will give service.

Physicians on List

4. "In most counties of Illinois, most practicing physicians are members of the County Medical Society. However, participation in this program shall be open to all physicians licensed to practice medicine in the State, subject to local statutory limitations and the general policy of working out with the organized medical profession a uniform plan to provide medical care for indigent persons.

Complaints

5. "When reports of incompetency or abuse of privi-

lege are registered against physicians working under this program, they shall be given to the local or County Advisory Committee which may refer the matter to the State Advisory Committee for thorough investigation. If the charges are sustained, after this investigation, the Committee will submit its report to the Illinois Relief Commission together with the recommendation of the Committee.

WHO SHALL REFER

6. "All calls requesting physicians to attend the sick shall be made to the local person responsible for the medical care program, and physicians shall be notified by such person or his representative. Where a patient does not choose a physician at the time a physician is requested, assignments from the list are to be made by the relief service. No limited number of physicians should secure an excessive amount of the work.

PHYSICIANS IN HOSPITALS AND CLINICS

7. "Except under extraordinary circumstances, and in cases of hospitalization for obstetrical care as provided in the paragraph on obstetrical service, there shall be no compensation paid to physicians or surgeons for work done in clinics or in hospitals. Whatever fees are paid, should be, as hereinafter described, paid to the clinic or hospital.

REPORTS TO MEDICAL ADVISORY COMMITTEE

8. "In order that the Medical Advisory Committee of the Illinois State Medical Society may function to the best advantage, a list of physicians in each county who are working under this program, with the approximate amount of work done by each physician during the month, shall be furnished each month by the Relief Committee to the Medical Advisory Committee, it being understood that the amount of work done by any physician may rest primarily upon the family physician principle.

DRUGS AND DIETS

1. "All prescriptions for necessary drugs not furnished by the attending physician shall be filled from the U. S. Pharmacopeia, National Formulary or from a reputable Hospital Formulary. Payments for proprietary or patent remedies shall not be approved.

2. "Physicians should use the less expensive drugs when possible, and if expensive drugs are considered essential, a written order for such drugs should be obtained.

3. "A standard or local formulary of acceptable drugs to be used will be submitted to each county or local medical society committee, for the guidance of all physicians working under this program.

4. "A list of special diets to be used, standardized to conform to the food lists of the Illinois Emergency Relief Commission, will be submitted to each county or local medical society committee for the guidance of all physicians working under this plan.

VISITS BY PHYSICIANS

NUMBER OF VISITS

1. "With the exceptions noted hereinafter, physicians shall not bill the Commission in cases of acute illness for more than one follow-up visit; unless they have secured approval of the person in charge of medical work for additional visits. It is obvious that in the case of certain children's diseases, such as measles, scarlet fever, etc., it might be necessary for quite a number of additional visits to be made. It is also obvious that serious acute illness, such as the pneumonias, daily or even more frequent visits might be required. These cases should be cleared with the person in charge of medical work and approval sought by the physician for such visits as he may have in mind, before the second re-visit is made and bills are submitted.

2. "The above should apply both to home visits and to patients visiting physicians at their offices.

PHYSICIAN'S FEES

3. "Fees paid to physicians shall be not to exceed $1.50 for home visits and not to exceed $1.00 for office visits. Physicians attending patients living outside of the corporate limits of the town in which the physician maintains his office shall be reimbursed for mileage at the rate of not to exceed 25 cents a mile one way, for the distance from the corporate town or city limits. It is understood that the fee is not paid with reference to the quality or the value of the service rendered, but it is primarily on the basis of what the physician might expect to receive, on the average, from persons of very low income or persons otherwise dependent.

AUTHORIZATION FOR MEDICAL CARE

OBSTETRICAL SERVICE

1. "Authorization for giving obstetrical care in the home shall include the necessary pre-natal visits, delivery in the home, and necessary post-natal care. In those cases where the attending physician in his professional judgment believes home care hazardous authorization for hospital care may be given by the local relief committee through the person in charge of medical work.

PERIOD OF CARE

2. "In such instances, the physician shall be paid his fee, as herein provided, and the hospital shall be reimbursed at an agreed rate not to exceed $2.00 per day for a period of no longer than 8 days. Thereafter, any further reimbursement to the hospital shall be only upon approval by the local person in charge of the medical program.

PHYSICIAN'S FEES

3. "The fee for complete obstetrical services, as mentioned above, shall be not to exceed $20,00 to the attending physician, not including the hospital. It is expected that there will be no imposition on the part of the attending physician in connection with the hospitalization of these cases, and in the event that there is a just complaint on the part of the county relief committees, the case will be investigated by the County Medical Society's Advisory Committee, when requested by the relief administrator or county relief committee.

WRITTEN AUTHORIZATION

4. "All authorizations for medical care shall be issued in writing by the local relief administrator, except that in an emergency, telephone authorization shall be immediately followed by a written order. When medi-

cal supplies or nursing is necessary the physician must submit his request for such to the relief administrator by telephone, which must be followed immediately by a request in writing, and receive a written authorization.

EMERGENCY CALLS

5. "In case of urgent emergency, the physician may, if unable to get immediate authorization for necessary care, make one call which will be approved, if the call is reported on the following day, and then make his written request for authorization for subsequent attention to the patient.

LIMITING VISITS

6. "Medical care for prolonged illnesses shall be authorized on an individual basis and visits must be limited as much as possible, without neglecting the welfare of the patient. Any question as to the possible abuse of this authorization shall be submitted by the local relief official for investigation by the County Medical Society's Advisory Committee. In all cases of acute illness, and minor ailments, the number of home visits must be limited, without neglecting the welfare of the patient. It is recommended, when feasible and necessary, that the nurse of the County Emergency Relief Committee's staff make an investigation before authorization for home care is issued, except in emergency cases.

EMERGENCY SURGERY

7. "Emergency surgical care in the office or home shall be authorized by the local person in charge of medical relief and the fee for services shall be a matter of agreement between the attending physician and the Relief Committee, but it is understood that the fee shall not be in excess of 50% of the regular minimum fee for such service. Emergency X-Ray examinations, or necessary laboratory services, may be authorized on a similar basis. Only necessary or emergency surgery will be authorized under this program.

APPLIANCES

1. "Medical appliances, i. e., glasses, artificial eyes, trusses, braces, belts, artificial limbs, when prescribed by a physician regularly serving an unemployment relief client, may be purchased with the approval of the County or local relief administration. When price and quality of appliances available locally are equal or better than that quoted by the Central Purchasing Department of the Illinois Emergency Relief Commission, the latter may authorize such purchases locally.

HOSPITALS

1. "Hospitals may be reimbursed from state or local funds at an agreed rate, not to exceed $2.00 per day per patient. In no instance, however, should the hospital receive more payment for its services than the approximate operating deficit of the institution. While non-profit hospitals, and where possible government institutions shall be given preference, private hospitals may be used when necessary. Patients referred for hospital care shall be confined to obstetrical and surgical cases and cases of acute illnesses.

PART-PAY DISPENSARIES

1. "Approved dispensaries established for the purpose of providing part-pay medical care may be reimbursed from State or local funds at an agreed rate not to exceed 50 cents per visit per patient. In no instance, however, should the dispensary receive more payment for its services than the approximate operating deficit of the institution. While non-profit dispensaries and, where possible, governmental institutions shall be given preference, private hospitals may be used when necessary.

2. "Authorization must be given in the same manner as prescribed for physicians.

"The above program conforms with Federal Emergency Relief Administration rules and regulations No. 7, thereby permitting all licensed physicians in the State of Illinois, who so desire, to register under this plan.

"It has been endorsed by the council of the Illinois State Medical Society for its application to the entire state, and ratified by each component county society. Its endorsement for application by each official county society must be received from the Illinois Emergency Relief Commission."

YOUR INCOME TAX REPORT—1934

The following data is published in the *Journal of the A. M. A.* is a clear outline of the income tax laws as it applies to medical men:

THE PHYSICIAN'S INCOME TAX—1934

The following instructions are based on the Revenue Act of 1932. That act, unless the congress now in session modifies it, will govern the collection of federal income taxes for the tax year 1933. It is believed likely, however, that Congress will modify the present law. What those modifications will be, if there are any, and to what extent they will call for a procedure materially different from that required by the Revenue Act of 1932, no one can foretell. Two courses are open to the physician. He may file his income tax return at once, for 1933, on the basis of the Revenue Act of 1932, and then, later, if new legislation so requires, he may make a supplemental return. If he prefers, however, he can wait until toward the close of the period allowed for filing returns, which is March 15, and then file his return in accordance with the legislation then in force. The choice between these two plans had best be determined by each physician to suit his own convenience.

The taxpayer who is required to make a return must do so on or before March 15, unless an extension of time for filing the return has been granted. For cause shown, the collector of internal revenue for the district in which the taxpayer files his return may grant such an extension, on application filed with him by the taxpayer. This application must contain a full recital of the causes for the delay. Failure to make a return may subject the taxpayer to a penalty of 25 per cent of the amount of the tax due.

The normal rate of tax on individual citizens or residents of the United States, under the Revenue Act of 1932, is 4 per cent on the first $4,000 of net income in

excess of the exemptions and credits, and 8 per cent on the remainder.

WHO MUST FILE RETURNS

1. Returns must be filed by every person having a *gross* income of $5,000 or more, regardless of the amount of his net income or his marital status. If the aggregate gross income of husband and wife, living together, was $5,000 or more, they must file a joint return or separate returns, regardless of the amounts of their joint or individual net incomes.

2. If *gross* income was less than $5,000, returns must be filed (*a*) by every unmarried person, and by every person married but not living with husband or wife, whose *net* income was $1,000 or more, and (*b*) by every married person, living with husband or wife, whose *net* income was $2,500 or more. If the aggregate net income of husband and wife, living together, was $2,500 or more, each may make a return or the two may unite in a joint return.

If the status of a taxpayer, so far as it affects the personal exemption or credit for dependents, changes during the year, the personal exemption and credit must be apportioned, under rules and regulations prescribed by the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury, in accordance with the number of months before and after such change. For the purpose of such apportionment a fractional part of a month should be disregarded unless it amounts to more than half a month, in which case it is considered as a month.

As a matter of courtesy only, blanks for return are sent to taxpayers by the collectors of internal revenue, without request. Failure to receive a blank does not excuse any one from making a return; the taxpayer should obtain one from the local collector of internal revenue.

The following discussion covers matters relating specifically to the physician. Full information concerning questions of general interest may be obtained from the official return blank or from the collectors of internal revenue.

GROSS AND NET INCOMES; WHAT THEY ARE

Gross Income.—A physician's gross income is the total amount of money received by him during the year from professional work, regardless of the time when the services were rendered for which the money was paid, plus such money as he has received as profits from investments and speculation, and as compensation and profits from other sources.

Net Income.—Certain professional expenses and the expenses of carrying on any enterprise in which the physician may be engaged for gain may be subtracted as "deductions" from the gross income, to determine the net income on which the tax is to be paid. An "exemption" is allowed, the amount depending on the taxpayer's marital status during the tax year, as stated before. These matters are fully covered in the instructions on the tax return blanks.

REDUCTIONS FOR PROFESSIONAL EXPENSES

A physician is entitled to deduct all current expenses necessary in carrying on his practice. The following statement shows what such deductible expenses are and how they are to be computed:

Office Rent.—Office rent is deductible. If a physician rents an office for professional purposes alone, the entire rent may be deducted. If he rents a building or apartment for use as a residence as well as for office purposes, he may deduct a part of the rental fairly proportionate to the amount of space used for professional purposes. If the physician occasionally sees a patient in his dwelling house or apartment, he may not, however, deduct any part of the rent of such house or apartment as professional expense; to entitle him to such a deduction he must have an office there, with regular office hours. If a physician owns the building in which his office is located, he cannot charge himself with "rent" and deduct the amount so charged.

Office Maintenance.—Expenditures for office maintenance, as for heating, lighting, telephone service and the services of attendants, are deductible.

Supplies.—Payments for supplies for professional use are deductible. Supplies may be fairly described as articles consumed in the using; for instance, dressings, clinical thermometers, drugs and chemicals. Professional journals may be classified as supplies, and the subscription price deducted. Amounts currently expended for books, furniture and professional instruments and equipment, "the useful life of which is short," may be deducted; but if such articles have a more or less permanent value, their purchase price is a capital expenditure and is not deductible.

Equipment.—Equipment comprises property of more or less permanent value. It may ultimately be used up, deteriorate or become obsolete, but it is not in the ordinary sense of the word "consumed in the using"; rather, it wears out.

Payments for equipment or nonexpendable property for professional use cannot be deducted. As property of this class may be named automobiles, office furniture, medical, surgical and laboratory equipment of permanent value, and instruments and appliances constituting a part of the physician's professional outfit and to be used over a considerable period of time. Books of more or less permanent value are regarded as equipment, and the purchase price is therefore not deductible.

Although payments for equipment or nonexpendable articles cannot be deducted, yet from year to year there may be charged off against them reasonable amounts as depreciation. The amounts so charged off should be sufficient only to cover the lessened value of such property through obsolescence, ordinary wear and tear, or accidental injury. If improvement to offset obsolescence and wear and tear or injury has been made, and deduction for the cost claimed elsewhere in the return, claim should not be made for depreciation.

A hard and fast rule cannot be laid down as to the amount deductible each year as depreciation. Everything depends on the nature and extent of the property and of the use to which it is put. Five per cent a year has been suggested as a fair amount for depreciation on an ordinary medical library. Depreciation on an automobile would obviously be much greater. The proper allowance for depreciation of any property is

that amount which should be set aside for the tax year in accordance with a reasonably consistent plan, not necessarily at a uniform rate, whereby the aggregate of the amounts so set aside, plus the salvage value, will at the end of the useful life of the property in the business equal the purchase price of the property or, if purchased before March, 1913, its estimated value as of that date or its original cost, whichever may be the greater. The physician must in good faith use his best judgment and make such allowance for depreciation as the facts justify. Physicians who, from year to year, claim deductions for depreciation on nonexpendable property will do well to make annual inventories, as of January 1, each year.

Medical Dues.—Dues paid to societies of a strictly professional character are deductible. Dues paid to social organizations, even though their membership is limited to physicians, are personal expenses and not deductible.

Postgraduate Study.—The Commissioner of Internal Revenue holds that the expense of postgraduate study is not deductible.

Traveling Expenses.—Traveling expenses, including amounts paid for transportation, meals and lodging, necessarily incurred in professional visits to patients and in attending medical meetings for a professional purpose, are deductible.

AUTOMOBILE

Payment for an automobile is a payment for permanent equipment, and is not deductible. The cost of operation and repair, and loss through depreciation, are deductible. The cost of operation and repair includes the cost of gasoline, oil, tires, insurance, repairs, garage rental (when the garage is not owned by the physician), chauffeurs' wages, etc.

Deductible loss through depreciation is the actual diminution in value resulting from obsolescence and use, and from accidental injury against which the physician is not insured. If depreciation is computed on the basis of the average loss during a series of years, the series must extend over the entire estimated life of the car, not merely over the period in which the car is in the possession of the present taxpayer.

If the automobile is used for professional and also for personal purposes—as when used by the physician for recreation, or used by his family—only so much of the expense as arises out of the use for professional purposes may be deducted. A physician doing an exclusive office practice and using his car merely to go to and from his office cannot deduct depreciation or operating expenses; he is regarded as using his car for his personal convenience and not as a means of gaining a livelihood.

What has been said with respect to automobiles applies with equal force to horses and vehicles and the equipment incident to their use.

MISCELLANEOUS

Laboratory Expenses.—The deductibility of the expenses of establishing and maintaining laboratories is determined by the same principles that determine the deductibility of other corresponding professional expenses. Laboratory rental and the expenses of laboratory equipment and supplies and of laboratory assistants are deductible when under corresponding circumstances they would be deductible if they related to a physician's office.

Losses by Fire, etc.—Loss of and damage to a physician's equipment by fire, theft or other cause, not compensated by insurance or otherwise recoverable, may be computed as a business expense, and is deductible, provided evidence of such loss or damage can be produced. Such loss or damage is deductible, however, only to the extent to which it has not been made good by repair and the cost of repair claimed as a deduction.

Insurance Premiums.—Premiums paid for insurance against professional losses are deductible. This includes insurance against damages for alleged malpractice, against liability for injuries by a physician's automobile while in use for professional purposes, and against loss from theft of professional equipment, and damage to or loss of professional equipment by fire or otherwise. Under professional equipment is to be included any automobile belonging to the physician and used for strictly professional purposes.

Expense in Defending Malpractice Suits.—Expenses incurred in the defense of a suit for malpractice are deductible as business expense.

Sale of Spectacles.—Oculists who furnish spectacles, etc., may charge as income money received from such sales and deduct as an expense the cost of the article sold. Entries on the physician's account books should in such cases show charges for services separate and apart from charges for spectacles, etc.

ANNUAL ASSEMBLY OF THE SOUTHEASTERN SURGICAL CONGRESS

The Southeastern Surgical Congress will hold its fifth annual assembly in Nashville, Tennessee, March 5, 6 and 7. The Andrew Jackson Hotel will be hotel headquarters and the lectures and exhibits will be in the War Memorial Building.

The following doctors will occupy places on the program: Fred H. Albee, New York; W. Wayne Babcock, Philadelphia; S. O. Black, Spartanburg; Vilray P. Blair, St. Louis; Frank K. Boland, Atlanta; J. B. Brown, St. Louis; D. B. Cobb, Goldsboro, N. C.; George W. Crile, Cleveland; T. C. Davison, Atlanta; John F. Erdman, New York; P. G. Flothow, Seattle; Seale Harris, Birmingham; M. S. Henderson, Rochester, Minn.; Arthur E. Hertzler, Halstead, Kansas; Chevalier Jackson, Philadelphia; Walter C. Jones, Miami; Dean Lewis, Baltimore; Joseph F. McCarthy, New York; C. Jeff Miller, New Orleans; A. J. Mooney, Statesboro, Ga.; John J. Moorhead, New York; Edward T. Newell, Chattanooga; Fred Rankin, Lexington, Ky.; Paul H. Ringer, Asheville; Stewart Roberts, Atlanta; George H. Semken, New York; Phil C. Schreier, Memphis; Arthur M. Shipley, Baltimore; H. E. Simon, Birmingham; A. O. Singleton, Galveston; J. R. Young, Anderson, S. C.; Waitman F. Zinn, Baltimore.

For information write Dr. B. T. Beasley, 1019 Doctors Building, Atlanta.

WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

On Saturday, January 20, a meeting of the Board of the Woman's Auxiliary to the Illinois State Medical Society was held at the Stevens Hotel, Chicago, at 10:15 o'clock, with Mrs. Solomon Jones, President, presiding. Twenty-four members responded to the roll-call. The minutes and the reports of the Treasurer and Corresponding Secretary were read, accepted and placed on file.

The Councilors gave very flattering reports of the interest shown by the physicians throughout the state in the Woman's Auxiliary and of our assistance to the medical profession. It was encouraging to see so many down state presidents, officers and councilors attending this meeting. Their reports and comments indicate a growing appreciation of the work of the Auxiliary.

Cook County Program Chairman, Mrs. Nelson M. Percy, gave a report of the year's programs and announced a very interesting laity lecture to be given January 31 at 2:00 o'clock by Doctor Clarence C. Little of New York, on the subject of "WHAT YOU CAN DO FOR CANCER CONTROL." This lecture will be given at Murphy Memorial Hall of the American College of Surgeons.

The meeting adjourned at 1:00 o'clock for luncheon in the Boulevard Dining Room of the Stevens Hotel with Miss Jean McArthur and Mrs. Esther Fraser of the Illinois State and Chicago Medical Societies as guests.

At 2:00 o'clock the meeting reconvened. Down state auxiliaries reported many splendid programs given by them covering numerous medical topics. Our State Hygeia Chairman, Mrs. H. H. Hurd, reported that Illinois had completed its quota of subscriptions to this health magazine. Mrs. J. P. Simonds, Chairman of Press and Publicity, reported that the ILLINOIS MEDICAL JOURNAL had carried monthly reports of all activities of the Auxiliaries and that copies of these articles had been sent to Mrs. Robert Fitzgerald, National Press Chairman.

The Board recommended that we as an organization cooperate with the State Department of Public Health in promoting "Health Week"; that we as an organization protest and cancel our individual subscription to the Ladies Home Journal because of the article appearing in the November issue of that Journal derogatory to physicians; that we as physicians' wives take an active interest in the welfare work of our respective clubs, keeping ourselves informed as to medical ethics by reading the medical journals.

Mrs. W. R. Cubbins, State Public Relations Chairman, suggested that the Cook County auxiliaries endorse a letter to be written to Mr. W. C. Bogan, Superintendent of Schools, requesting that the Household Arts and Kindergarten teachers in Spaulding School for Crippled Children be reinstated.

Respectfully submitted,

(MRS. A. H.) SOPHIE J. BBUMBACK,
Third District Councilor.

EDUCATIONAL COMMITTEE

January, 1934

Jean McArthur, Secretary

SPEAKERS' BUREAU:

6,500—Attended the *52* health programs arranged by the Committee during the month of January. The following groups requested these speakers from the Illinois State Medical Society: Rotary Clubs, Y. M. C. A., Y. W. C. A., Districts of the Illinois Federation of Women's Clubs, Colleges, University Clubs, Women's Clubs, Parent Teacher Associations, Nurses, Chemists Clubs, Junior Colleges, Parent Education Study Clubs, Junior and Senior High Schools, Young Mothers' Clubs.

Lectures on Cancer and a showing of the Canti film have been offered the colleges of Illinois. Such programs were arranged for Greenville College and Shurtleff College in January.

The Committee is cooperating with the Illinois Federation of Women's Clubs in arranging programs for the Health Institutes sponsored in the various districts. These programs have emphasized the Importance of Pre-Natal Care, the Periodic Health Examination, Mental Health.

R. R. Ferguson, Chairman of the Committee, was invited to give a talk on Medical Economics before the Woman's Auxiliary of the Chicago Medical Society.

Comments on talks given by physicians indicate they are filling a need in the State: "Talk very interesting and instructive. It was greatly enjoyed by all who heard it." "Most Instructive and Interesting." "Talk was very interesting, instructive and helpful, seasoned with commonsense and a sympathetic understanding. Many favorable comments, quite unsolicited, have been made. We are very grateful to you for this program." "Splendid and interesting talk."

SCIENTIFIC SERVICE:

14—Scientific programs on the following subjects were arranged for medical groups in counties Will-Grundy, Scott (Davenport, Iowa), Rock Island, Union, Kankakee, Iroquois, Jackson, Livingston:

Medical Economics	Obstetrics
Heart Disease	Pernicious Anemia
Pneumonia	Diseases of the Nails
Rheumatic Fever	The Gall Bladder
Fractures of the Lower Extremities	Importance of Pre-natal Care
The Asthmatic Patient	Pediatrics

These papers were presented by Doctors Lee Frech, S. J. Taub, LeRoy Sloan, Aaron Arkin, C. C. Maher, David S. Hillis, Frank Smithies, Cleveland J. White, Bernard Fantus, Edmund Andrews, Philip Kreuscher, Charles E. Galloway, Mark Jampolis, Edward J. Stieglitz.

SERVICE TO MEDICAL SOCIETIES AND OTHER GROUPS:

364—Notices prepared and sent for LaSalle County Medical Society.

27—Letters sent out for Randolph County.
132—Notices mimeographed and mailed for Livingston County.
342—Invitations mimeographed and mailed for Perry County.
270—Notices mimeographed for Woman's Auxiliary, Chicago.
431—Announcements mimeographed for special health programs of the Federation of Women's Clubs.
650—Postal card announcements of Dr. C. C. Little's Cancer lecture mimeographed for the Woman's Auxiliary.
Special letters and questionnaires typed for Historian of the Woman's Auxiliary of the Illinois State Medical Society.
Radio talks furnished Rock Island County Medical Society.
35—Package libraries furnished doctors and laity.
Arrangements made to furnish Central Branch Y. W. C. A., Chicago, appropriate health articles for posting on Health Education Bulletin Board.
Material copied and mimeographed for Special Committee on Emergency Relief.

PRESS SERVICE:

451—Regular press service.
21—Monthly press service.
119—Newspapers, re meeting LaSalle County Medical Society.
48—Newspapers, re meeting Madison County Medical Society.
29—Community newspapers, re meetings Branches of Chicago Medical Society.
4—Chicago Association of Commerce, Chicago Medical Society.
24—Notices to Chicago Metropolitan papers of Chicago Medical Society.
18—Newspaper releases Woman's Auxiliary laity meeting.

714—TOTAL RELEASES FOR THE MONTH OF JANUARY.

Articles written and approved for release on "Measles—A Serious Disease in Young Children," "Amebic Dysentery," "Scarlet Fever Prevalent."

RADIO:

23—Radio programs from three Chicago stations, WGN, WJJD, WAAF. The following doctors participated in the programs:

E. L. Cornell—Prenatal Care.
M. R. Guttman—Abscess of the Ear.
H. G. Ohls—Pneumonia (Prepared by Leroy H. Sloan).
M. P. Borovsky—Common Errors in the Care of Infants.
Emil G. Vrtiak—Prevalence and Cause of Arthritis.
C. H. Anderson (Moline)—Preparing the Child for School.
Francis L. Lederer—Nose and Throat Conditions in Children.
E. L. Chainski—Deafness, Its Prevention in Children.
Louis W. Sauer—Whooping Cough Prevention.
Charles M. Jacobs—The Crippled Child.
Harry E. Hickman—Diabetes.
Alex A. Hershfield—A Penalty of Age.
Carl F. Schaub—Strabismus.
T. J. Conley, Jr.—Tired People.
Jacob D. Mayer—Constipation.
J. M. Mora—Varicose Veins.
L. D. Snorf—Importance of the Vitamins in Diet.
Laurence E. Hines—Heart Disease After Middle Age.
Ethel M. Fikany—Obesity and Health.
Arrie Bamberger—Rabbit Fever.
Gerard N. Krost—Home Care of the Sick Child.
S. C. Henn—My Child Won't Eat.
M. Edward Healy—Body Weight.

ANNUAL REPORT OF THE VETERANS' ADMINISTRATION

The A. M. A. Journal, January 27, 1934, submits the following report on the Veterans' administration:

ANNUAL REPORT OF THE VETERANS' ADMINISTRATION

The Administrator of Veterans' Affairs, Frank T. Hines, submitted to the Congress of the United States, January 3, the Annual Report of the Veterans' Administration for the fiscal year ended June 30, 1933. The hospital load of the Veterans' Administration on that date was 33,795, a decrease of 10,046, or about 23 per cent, in the number on the last day of the previous fiscal year. Of the total load, 16,590 were World War veterans receiving treatment for disability not the result of service, 2,787 were veterans of wars prior to the World War, and 201 were employees of the Civilian Conservation Corps. Sixteen per cent of the patients then present in hospitals had tuberculosis, 60 per cent neuropsychiatric diseases, and 24 per cent general medical and surgical conditions. This is a marked change since June, 1923, when 41 per cent of the veterans were under treatment for tuberculosis, 39 per cent for neuropsychiatric diseases and 20 per cent for general conditions.

Since March 3, 1919, there have been 1,277,624 admissions to hospitals, of which 136,626 were made during the last fiscal year. Since June 7, 1924, when hospitalization was first authorized for the veterans of all wars without regard to the origin of their disabilities, 531,715, or 62 per cent of all admissions, had been for the treatment of non-service-connected disabilities. About three fourths of the admissions in the last fiscal year were for nonservice disabilities. During this year 71,139, or 52.07 per cent of the total, were first admissions, while 62,112, or 45.46 per cent, were readmissions.

About 179,400 patients were under hospitalization during the year, of whom 145,937 were discharged after an average of 96.5 inpatient days; 86 per cent of these remained until the completion of the hospitalization episode. During the year, 7,375 patients died in hospitals and 60 per cent were among patients under treatment for general diseases, 28 per cent for pulmonary tubercu-

losis, and 12 per cent for neuropsychiatric diseases. Eleven per cent of the pulmonary tuberculosis cases resulted in death, 4 per cent of the general, and 2 per cent of the neuropsychiatric. This decrease was the direct result of the act of Congress, approved March 20, 1933, which denied the benefit of hospitalization to many veterans who had been eligible under prior laws. This law also resulted in a decrease of 8 per cent in the number of admissions to hospitals over the number admitted in the previous fiscal year.

The Veterans' Administration was operating, June 30, 1933, hospital facilities at seventy-one locations in forty-three states and the District of Columbia, providing a total of 40,213 beds, or an increase of 3,641 beds over those available at the end of the previous year, practically all of which increase was for the care of psychotic and general medical and surgical patients. Seven newly construced hospitals were opened during the year; namely, at Tuscaloosa, Ala.; Albuquerque, N. M.; Canandaigua, N. Y.; Columbia, S. C.; Salt Lake City; Huntington, W. Va., and St. Petersburg, Fla. Additional hospital beds were acquired through new construction or alterations at a number of other locations. Three new facilities were completed this year but were not opened; namely, at Wichita, Kan. (162 beds); Cheyenne, Wyo. (108 beds), and Roseburg, Ore. (191 hospital and 350 barrack beds). During the year three facilities were closed; namely, at Philadelphia (416 beds); Kansas City, Mo. (200 beds), and Dwight, Ill. (225 beds). With the closing at Kansas City, all facilities controlled by the Veterans' Administration are government owned. The Congress of the United States has appropriated since February, 1919, the sum of $119,952,000 for new hospitals, domiciliary and outpatient dispensary facilities, and in addition there has been expended since 1923 over $16,800,000 from regular fiscal funds for improvements and extensions to veterans' facilities. At the close of the fiscal year there were under construction the following major projects: (*a*) 275 new hospital beds at Augusta, Maine; (*b*) a 297-bed hospital at Batavia, N. Y.; (*c*) a 518-bed home at Biloxi, Miss.; (*d*) 188 additional hospital beds at Coatesville, Pa.; (*e*) a 300-bed hospital at Des Moines, Iowa; (*f*) a 258-bed hospital at Fayetteville, Ark.; (*g*) 199 additional hospital beds at Fort Lyon, Colorado; (*h*) 748 new hospital beds at Leavenworth, Kan.; (*i*) 56 additional hospital beds at Rutland Heights, Mass.; (*j*) a 334-bed hospital at San Francisco; (*k*) 104 new hospital beds at Tuscaloosa, Ala. The construction under way at Leavenworth, Kan., will result in a net increase of 383 beds, and at Tuscaloosa, Ala., 77 beds. The daily cost of operation per patient for hospitals used principally for the treatment of tuberculosis is $4.61 (a reduction of 22 cents over last year); for hospitals for the treatment of neurophychiatric diseases, $2.12 (a decrease of 33 cents); for all general hospitals, $3.48, and for all types of hospitals, $2.99.

The field facilities of the Veterans' Administration made 1,350,452 physical examinations during the year for outpatient purposes, a decrease of 707,260 of the number made during the previous year. Of this number, 28,291 were dental examinations. About 94 per cent of the medical examinations and 81 per cent of the dental examinations were made by physicians on a salary basis. The medical and dental treatments rendered by physicians on a salary basis were 75.3 per cent and 71.3 per cent, respectively, of the total treatments. At the end of the fiscal year there were 5,739 beneficiaries under the supervision of follow-up nurses. General Hines states that the material decrease of the number of examinations made for outpatient purposes was due largely to the act of Congress approved March 20, 1933, and the regulations issued thereunder, which prescribed new eligibility requirements for entitlement to certain benefits.

Dental services rendered in Veterans' Administration clinics during the year, if computed on a fee basis, would have cost $1,700,910, whereas the actual cost of furnishing this relief was $869,708.52, thereby resulting, it is said, in a saving of almost 50 per cent. The number of beneficiaries that received dental treatment during the year was 57,018, an increase of 20,232 over the previous year, due largely to including for the first time dental work furnished by clinics at Veterans' Administration homes. At the close of the year there were 158 full time and 3 part time dental officers on duty with the Veterans' Administration.

Although 118 years has elapsed since the close of the War of 1812, there are yet seven persons receiving pensions on account of services rendered by soldiers in that war, and there were still 415 widows of Mexican War veterans on the pension roll. At the close of the year, pensions were being paid to 23,863 veterans of the Civil War, representing a reduction of 7,209 since the close of the previous year. There were also on the pension rolls 125,638 widows and minor or helpless children of veterans of the Civil War, a decrease of 14,286. The grand total disbursements for pensions on account of the Civil War to June 30, 1933, was $7,698,594,101.77. The estimated amount paid to pensioners of all wars and the regular establishment from the year 1790 to June 30, 1933, is $8,871,483,951.58. The total number of pensioners on the roll at the end of this year was 416,840, a decrease of 21,101 over the previous year; of the total, 174,121 were widows and dependents of veterans and 566 were army nurses.

The seventy-third Congress of the United States in an act approved March 20, 1933, repealed all laws granting pensions to veterans of the World War for disabilities incurred in service and in place thereof provided for the payment of pensions effective July 1, 1933. General Hines summarizes the eligibility requirements and the rates established for pensions. Compensation was being paid, June 30, 1933, to 336,710 veterans for disabilities directly or presumptively resulting from service in the World War, an increase of 8,052 over the previous year, and the disbursement for this purpose during the year was $184,824,665.79, a decrease of about four and three-fourth millions of dollars. The average monthly value of all compensation awards at the end of the year was $43.70, a decrease of 42 cents over the corresponding date of last year. The major disabili-

ties for which veterans are receiving compensation are neuropsychiatric diseases (21 per cent), tuberculosis (19 per cent), and general medical and surgical conditions (60 per cent). There were 2,966 women veterans receiving compensation, June 30, 1933, an increase of 62 over a year ago; of these women, 2,424 were army nurses and 122 navy nurses. June 30, 1933, compensation was being paid to the beneficiaries of 98,628 veterans who died in service or as a result of disabilities or injuries incurred in service during the World War, an increase of 1,180 cases over the previous year. Death claims have been paid to date to the beneficiaries of 128,818 deceased veterans. The principal causes of death of veterans who died as a result of service and whose dependents now receive benefits was tuberculosis, 30 per cent; injuries, 28 per cent, and disease of the respiratory system, 25 per cent (largely influenza contracted during the 1918 epidemic). Regular monthly payments were being made, June 30, 1933, to 6,007 emergency officers who incurred disabilities of 30 per cent or more in the World War, a decrease of 408 over the previous year, which decrease was due, it is said, to an act of Congress approved June 30, 1932. There were 616,069 government life converted insurance policies in force at the close of this fiscal year.

The Veterans' Administration, June 12, 1933, began a selection of veterans to compose the veterans' contingent for emergency conservation work. Later the authority for enrolling veterans in this work was extended, and 26,838 selected veterans were in work and conditioning camps, July 31, 1933. The hospital facilities controlled by the Veterans' Administration were made available for the treatment of employees of the Civilian Conservation Corps, and on June 30, 1933, there were 201 of these men under treatment in these facilities.

The number of employees on the rolls of the Veterans' Administration, June 30, 1933, was 35,467, whose annual aggregate gross salaries totaled about fifty-eight and a half million dollars, including allowances but excluding compensation paid per diem and per hour employees. This was a decrease of 1,351 employees at the close of the previous fiscal year. The personnel in the central office of the Veterans' Administration decreased from 5,372 to 5,052 during the year, and the personnel on duty at field stations decreased from 31,446 to 30,415, a reduction of 1,031 employees. The actual net disbursements of the Veterans' Administration for all purposes for the activities under its jurisdiction during the fiscal year totaled $868,688,479.42, of which amount $13,517,369.43 was for new hospitals and domiciliary facilities.

General Hines summarizes regulations that grew out of the act of Congress of March 20, 1933, tending toward the administration's broad economy program. On June 16, 1933, Congress further liberalized the act of March 20, 1933, and the regulations issued to that time. This act extended protection within defined limits in the several classes of pensions previously awarded to veterans and their dependents of the World War and the Spanish-American War and set up boards of review throughout the country for the final determination, subject to appeal, of veterans' claims, in which presumptive service connection had hitherto been granted under the World War veterans' act of 1924 as amended. Congress in this act appropriated $531,988,000 for the administration of veterans' relief (exclusive of the appropriation for the adjusted service certificate fund) for the fiscal year 1934, which was a reduction of some $338,000,000 in the 1934 appropriation previously sought for the same purpose.

Included in the report is a tabulated survey of all government hospitals, showing, among other things, their locations and the locations of the nearest government hospital, the capital investment in each hospital, the number and age of the patient buildings, the beds available, and the general nature of the medical work.

VETERANS' RELIEF REGULATIONS MODIFIED

President Roosevelt announced, January 19, it is reported, certain modifications of the regulations providing for veterans' relief. The changes affect 228,000 veterans and add $21,092,000 to the cost of the Veterans' Administration, bringing the total for the present fiscal year to $510,000,000. The several amendments to the regulations affecting the veterans provide for:

1. Increase from $90 to $100 in pensions for veterans suffering total service connected disability, and proportionate increases for those suffering less than total service connected disability.

2. Liberalized provision for hospitalization of veterans in non-service-connected emergency cases in which patient cannot pay.

3. Granting of $15 monthly pensions to Spanish-American War veterans in service ninety days, discharged for disability incurred in less than ninety days, or who are now 50 per cent disabled, regardless of service connection or age.

4. Increase from $15 to $100 in funeral allowance for deceased war veterans.

5. Elimination of provision requiring veterans suffering non-service-connected disability, not due to their own misconduct, to prove minimuim of ninety days service before granting of $30 monthly pension.

6. Restoration of former pension rates to widows of regular army officers and enlisted men who died of disabilities incurred in line of duty.

7. Modification of rule prohibiting payment of pension of federal employees receiving salaries more than $50 a month, and granting pensions to single employees paid not over $1,000 a year, or married employees not over $2,500 a year.

PATIENCE REWARDED

"When do you graduate?"

"End of this quarter."

"Surprised?"

"No; I've been expecting it for years."—*Ames Green Gander.*

INORGANIC SALT AND WATER METABOLISM

The Wileys and Waller fed sodium, potassium and ammonium chlorides and sodium bicarbonate in equivalent quantities to a normal man on a salt-poor, maintenance diety. Sodium chloride administration was accompanied by a negative potassium balance, an early sodium and chloride retention followed by an increased excretion of both, an increased excretion of both urinary and fecal calcium, and slight changes in body weight. The ingestion of potassium chloride caused an increase in the excretion of sodium and potassium, resulting in a negative balance for each of these elements, a decrease in the inorganic phosphates, an increase in inorganic sulphates, and no marked change in the body weight. The ingestion of ammonium chloride was accompanied by negative balances in sodium and potassium, the latter being quite marked, slight negative balances for calcium and magnesium, and an increased ammonia formation and titratable acidity. The body weight declined during the feeding periods, indicating a loss of body water, and in the control periods the gain in weight more than balanced this loss. Sodium bicarbonate cause a slight retention of water, a negative sodium balance, a positive potassium balance, a slight decrease in chloride excretion, and a marked decrease in ammonia formation.

Hoffman and Post made careful metabolic balance experiments of four patients with nephrotic edema for the relationship of the mineral metabolism to edema. They found that the ingestion of water, sodium or chloride produces a transudation of these substances across the capillary walls to keep the osmotic relations of the plasma and extracellular fluids somewhere near normal, until the excretion by the kidneys restores the normal body content. A low serum protein concentration produces a tendency for accumulation of extracellular fluid because of the lag in the return of fluid into the blood stream. The extent of this accumulation is determined, among other factors, by the speed with which the kidneys carry on the excretion of water, sodium and chloride. An adequate excretion of sodium (and therefore of its quota of water and chloride) in nephrosis is apparently possible only when the serum sodium concentration is at a normal or higher than normal level. The serum sodium concentration seems to be related to that of red cell potassium, and factors that raise the latter may raise the concentration of serum sodium and thereby increase the urinary excretion of sodium.

EFFECTS OF VIRULENCE OF MICRO-ORGANISM

Medlar and Sasano made a comparison of the microscopic changes caused by the same strain of tubercle bacillus in the state of high and of low virulence. The virulent bacilli caused an acute inflammatory response in the normal nonallergic rabbit wherein the neutrophils predominated. The bacilli of low pathogenicity called forth monocytes and lymphocytes, thus giving an inflammatory reaction of a chronic type. Abscesses, caseation and cavitation were regularly produced in normal, nonallergic rabbits infected with bacilli of high virulence, while tubercles, giant cells, lymphocytic infiltration and fibrosis were predominant in those infected with bacili of low virulence. Classic tubercle is a retrogressive healing lesion. As such it is found in virulent infections on allergic soil or in nonvirulent infections on nonallergic soil. The present distinction between the pathology of first infection and reinfection is open to serious question, because the degree of virulence and dosage of the infectious agent are not duly considered. The same criticism may be justly made of the distinction drawn between tuberculosis in the child and in the adult.

LEARN THESE FACTS ABOUT CANCER

Truths that everyone should know about cancer are listed in an article in the April *Hygeia* by Dr. Francis Ashley Faught.

Cancer begins as a single spot and is at first always a local disease; as such it is removable and permanently curable.

Cancer never dies out of itself, but continues to grow until it destroys the life of the person in whom it grows.

Cancer is not a blood disease; it is the abnormal growth of normal cells in the body.

Cancer is in no way infectious or contagious.

Cancer chooses to attack diseased rather than healthy parts; therefore cancer may be considered in some instances a preventable disease.

Precancerous conditions are those which are not yet cancerous but may become cancerous if neglected.

Chronic irritation is a definite precursor of cancer.

There is no safe, simple serum, drug or other remedy for cancer.

Surgery, X-rays or radium, singly or combined, are the only known methods of treatment.

The periodic health examination is a valuable preventive measure against cancer.

POOR THING

A group of little girls had been playing with their dolls when a discussion arose and the mother of the one, whom the others were visiting, stopped to listen. "Well," said one little tot, "I don't believe in storks. The doctor brought me in his big black bag." "And I was bought at the drug store," piped up another. A pause and then another said, "We are too poor, so I guess I must have been homemade."

IN THE OLD, OLD DAYS

After the death of Jacob Dormire, of Palestine, Shelby county, Ohio, who died last week, a post-mortem was held by physicians, and it was found that his death had been caused by three grape seeds which had lodged in the appendix, and one had sprouted and closed the passage with a pus-sack. He was a terrible sufferer for three days before his death.

Original Articles

DEEP NECK INFECTION—SURGICAL APPROACH*

HANBY L. FORD, M. D.,
CHAMPAIGN, ILL.

In this presentation I shall endeavor to bring forward very few original thoughts and impressions but rather emphasize the importance of the careful perusal and study of articles listed in the bibliography, upon whose authors I have drawn very freely. The great importance of the subject, I am confident, is generally recognized, but feel quite vaguely understood by many and it is my purpose to review very briefly some of the most important points in the applied anatomy of the neck structures and thereby give a better conception of what transpires in deep neck infection, stress the importance of timely diagnosis and early surgery where definitely indicated.

The paper is based upon personal study and operating room experience, freely abstracted pertinent literature, and careful anatomic review of fourteen cadavers, particular attention being paid to the cervical fasciae, pharyngomaxillary, parotid, and submaxillary fossae, retro-pharyngeal and submental spaces, and neuro-vascular carotid sheath. In cadaver dissection, the pharyngomaxillary fossa before entering the retrostyloid compartment, measured an average of two inches in depth and, after entering the finger beyond what I shall call the "sphincter," later to be described, the entire length of the forefinger could be entered to the base of the skull. Considerable variation was found in the location of the anterior facial vein, although usually found crossing the submaxillary gland, over the posterior third; whereas the artery practically in every case "grooved" the posterior aspect of the gland and served as a "hinge" to turn it backward during the "submaxillary fossa approach" as described by Mosher. One is impressed by the great tensile strength of the deep cervical fascia,—a sheet of fibrous tissue as tough as a whip cord—the dense parotid fascia with the trabeculae knitting the gland together like a Persian rug—capable of sustaining a weight of two to three hundred pounds. This forced the realization that fluctuation in the neck at a sensible time is an impossible thing. Pus will not work through a "cow hide," so to speak.

All consideration of neck suppuration must necessarily be preceded even in the surgeon's mind before operating, by a review of the applied anatomy.

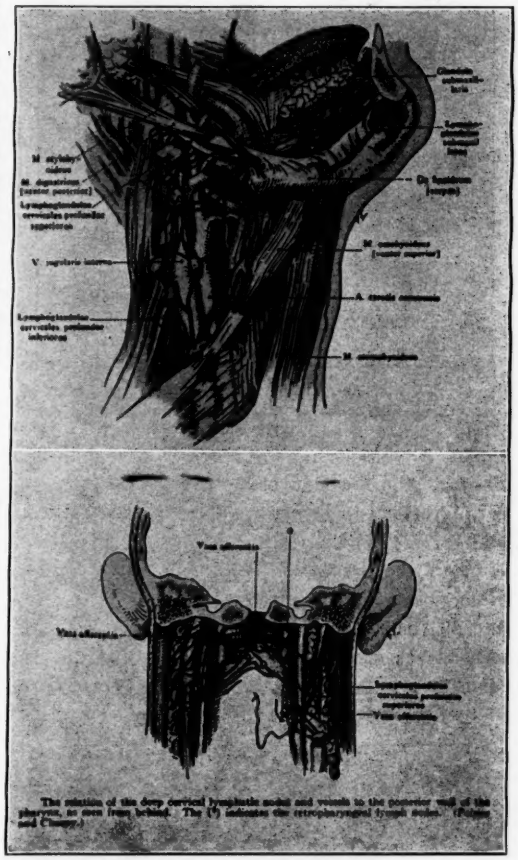

Fig. 1. Deep lymphatic drainage.

Fig. 1. *Deep Lymphatic Drainage.* It is by way of the lymph vessels and glands draining the upper respiratory tract and the loose connective tissue spaces intimately connected with them, that abscesses descend into the neck and mediastinum.

The deep cervical fascia forms a complete sheath inclosing the muscles of the neck and the structures which lie between and under them. Then general arrangement is best studied in cross section at the thyroid isthmus. Here it is possible to recognize 1. a *superficial* or *"splitting"*

*Read before Section on Eye, Ear, Nose & Throat, Illinois State Medical Society, Peoria, May 17, 1933.

layer, 2. a *pre-tracheal* layer, 3. a *pre-vertebral* layer, and 4. a *fascial sheath* which encloses the common carotid, vagus, and internal jugular on either side. The first layer which covers the deep

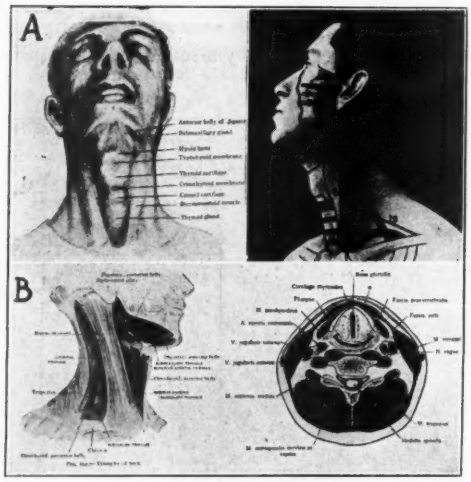

Fig. 2. (A)—Side of neck and face; (B)—triangles of the neck and cross section of the cervical fasciae.

Fig. 2. (a) *Side of the Neck and Face.* Showing the great horn of hyoid bone and danger of vertical incisions in suppurative parotitis; and *surface markings.*

(b) *Triangles of the Neck* and *Cross section of cervical fasciae.*

part of the sterno-cleido-mastoid is blended with the lateral surface of the carotid sheath. In front it is attached to the body and great horn of the hyoid and then as it is prolonged upward

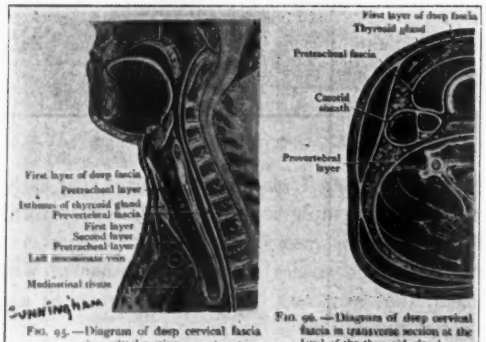

Fig. 95.—Diagram of deep cervical fascia in sagittal section.

Fig. 96.—Diagram of deep cervical fascia in transverse section at the level of the thyroid gland.

Fig. 3. Deep cervical fascia in transverse section at level of thyroid gland, and in sagittal section.

Fig. 3. Deep cervical fasciae in transverse section at level of thyroid gland, and in sagittal section.

it splits anteriorly to enclose the submaxillary gland and posteriorly to enclose the parotid gland. The superficial layer over the parotid is attached to the zygoma. The lamella which passes deep to the parotid covers the posterior and anterior medial aspects. The posterior part is attached above to the lower border of the tympanic plate and the anterior part to the petrotympanic fissure. It has an intermediate attachment to the styloid process and to the posterior border of the angle of the mandible. That portion is relatively thick. It lies in relation with the lower part of the antero medial surface of the parotid and is known as the *stylo-mandibular* ligament. This ligament separates the submaxillary from the parotid gland. This deep parotid fascial and ligamentous arrangement may be likened to the extended thumb and first two fingers in tripod fashion. The deep fascia of the parotid is not complete to the base of the skull. It does not cover the upper inner surface of the parotid,—permitting this part of the gland to be in intimate relationship with the anterior part of the pharyngomaxillary fossa. The prevertebral fascia forms the posterior limit of the visceral space, containing the larynx and trachea, thyroid gland, and the pharynx and esophagus. These latter structures physiologically move up and down in this compartment being likened by Iglauer to a "piston in a cylinder," thereby tending to spread infection.

Parallel to the carotid sheath and along its medial aspect the prevertebral fascia gives off a thin strip, the *bucco-pharyngeal* fascia, which closely invests the pharyngeal muscles. The latter is attached to the prevertebral layer by loose connective tissue only, leaving an easily distended *retropharyngeal* space, limited above by the base of the skull, and below extending behind the esophagus into the posterior mediastinal cavity of the thorax.

The *pretracheal fascia* extends in front of the carotid vessels and trachea, fixed above to the hyoid, fused on either side with the prevertebral fascia, and extending downward at the root of the neck, ultimately blending with the fibrous pericardium.

Fig. 4. *Pharyngo-maxillary fossa.* (a) Cross Section. The pharyngo-maxillary fossa, or para-pharyngeal space, may be considered as a pyramidal cone about 2½ to 3½ inches in depth,

with the base in relation to the skull around the jugular foramen and apex at the great horn of the hyoid bone, directed up, in, and back; limited medially by the superior constrictor with the tonsil attached, in the anterior portion—and in the posterior medial surface by the retropharyngeal space, being separated from the latter by a thin lamella of fascia;—in the outer boundary considerable resistance to the penetrating finger when passing from the anterior to the posterior compartment, giving one the impression of a constriction, so that in a suppurative process the styloid musculature does not easily yield and permit ready access of the infection to the posterior compartment. The tensile strength of this fascial bed is very great and assuredly yields

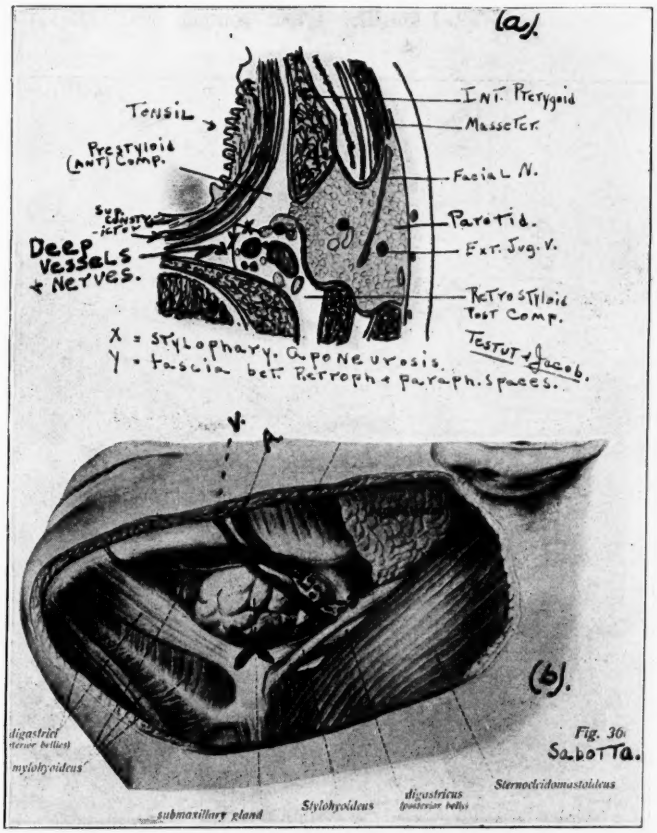

Fig. 4. Pharyngo-maxillary fossa (a) cross section, (b) from the front-relationship of vein, artery, and fold of fascia between submaxillary and parotid gland.

—above, the parotid gland, deficient in fascial investment, and below,—the internal pterygoid muscle lining the inner surface of the mandible. Posteriorly, the prevertebral muscles and fascia. Dividing the space into two unequal compartments, the pre-styloid and post-styloid, is the styloid process with its attached muscles overlying the great vessels.

Zuckerkandl states that there is a communication between the stylo-pharyngeus and stylo-glossus muscles. On the cadaver one encounters only to a "dissecting process," as pus under pressure. The pus may burrow down into the neck at the apex of the cone, *around,* not in, the carotid sheath;—from involvement of the posterior compartment;—or at a lower level under the posterior belly of the digastric with access to the larynx, trachea, esophagus, posterior cervical triangles or mediastinum; or, up to the base of the skull; or, extension may occur, uncommonly, to the retropharyngeal space.

(b) Pharyngo maxillary fossa from the front,

—relationship of vein, artery, and fold of fascia between submaxillary and parotid gland.

Fig. 5. *Relation of submaxillary, parotid and pharyngo-maxillary fossae to carotid sheath* with Beck's conception of fascial arrangement and the author's conception.

Fig. 6. *Pharyngo-maxillary fossa from behind.*

The fossa may become the seat of suppuration from a variety of causes as infected tonsils, glands in the fossa, from a Bezold's mastoid abscess or petrositis, retropharyngeal glands, suppurative parotitis, diseased teeth, nasopharyngitis, spinal caries and following local tonsillectomy. *Infection of this space constitutes over one-half the cases of deep neck infection.* Even in the cases where the point of origin of the infection is elsewhere there very frequently occurs extension into the space. Shapiro's review classifies deep cervical infection under two headings: "A *phlegmonous type* in which signs of local inflammation are predominant and a *vascular form* in which these are absent or subordinate; the symptoms from the start being those of a systemic involvement." The first is the typical variety and accounts for 94 per cent. of the cases reviewed by him. It is primarily a cellulitis of the loose tissue within the prestyloid compartment—abscess formation taking place. The *diagnosis* rests mainly on three cardinal signs—in order of appearance, these are *trismus, fever,* and *swelling of the neck* on the affected side. Other symptoms may occur later. The trismus, first to appear, is due to "splinting" of the internal pterygoid and involvment of the pterygomandibular ligament. Temperature becomes septic, often with chills preceding the high excursions of temperature, and sweats following.

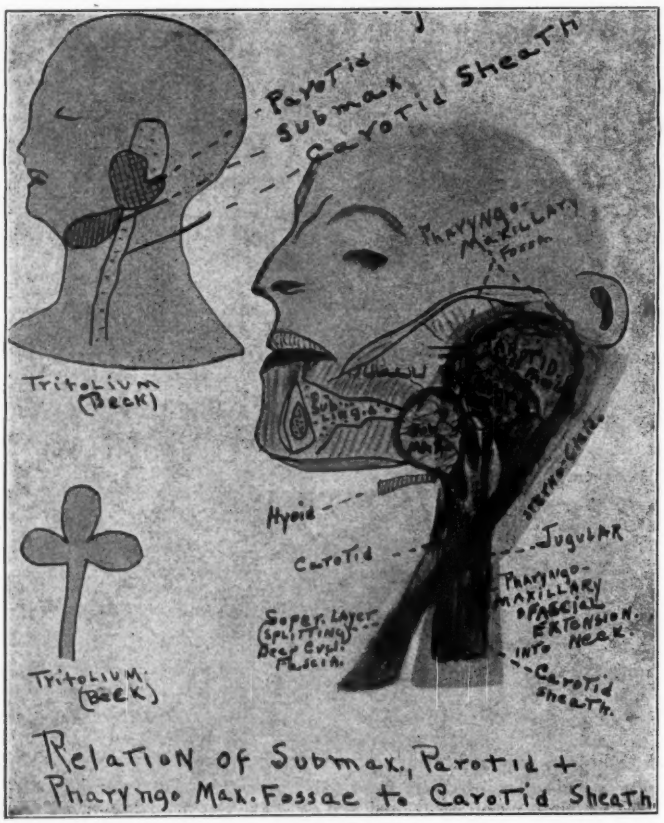

Fig. 5. Relation of submaxillary, parotid, and pharyngo-maxillary fossae to carotid sheath, with Beck's conception of fascial arrangement, and the author's conception.

Swelling is usually present at the angle of the jaw within a few days after onset. Then occurs usually swelling of the lateral pharyngeal wall, with or without change of color. With this swelling there is often what August Beck designates a "prolapse" of the tonsil and palatal arch—a displacement toward the median line, generally without any swelling of the tonsil itself, a point which helps to differentiate it from peritonsillar abscess; although this prolapse may be a relatively late sign. Any swelling over the parotid may aid further in differentiation. Extension downward does not occur for several days usually. There may be infection in the pharyngomaxillary space without any visible evidence of infection in the parotid or submaxillary space. Inability to open the mouth widely is one of the earliest signs of infection high up. Pain in the neck and throat is usually present. There may be no external swelling whatsoever, yet with clinical picture of sepsis following angina, patient may die of jugular thrombophlebitis and a fatal septicemia, the *vascular type*. The diagnosis of jugular thrombosis, however, may be difficult as marked pyemic symptoms of the parapharyngeal *infection* alone often occur. According to Shapiro, however, a chill followed by a sharp rise in temperature during the course of a parapharyngeal infection should be regarded with suspicion; and, repetition of these symptoms within twenty-four hours calls for exposure of the jugular vein. The vascular type of parapharyngeal infection offers a bad prognosis, six of the seven cases reviewed by Shapiro ending fatally. The manner in which the thrombosis occurs has been the subject of considerable argument by German authorities, in considering posttonsillitis pyemia. Fraenkel feels that there

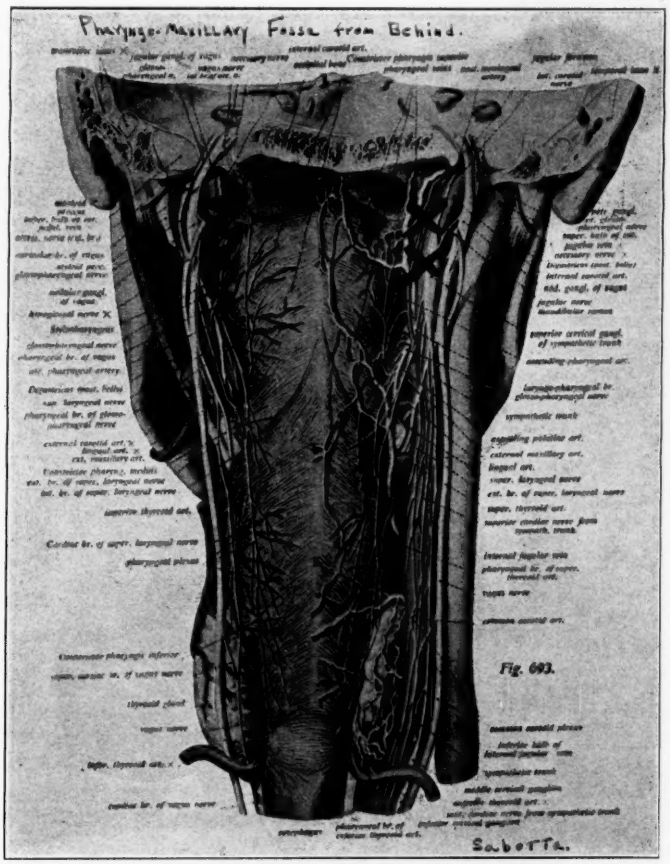

Fig. 6. Pharyngo-maxillary fossa from behind.

occurs primary thrombosis of the retrotonsillar veins; Uffenorde feels that the lymphatics and lymph nodes adjacent to the vein are the most important; while Waldapfel feels that the thrombosis results from peri-vascular infiltration by contiguity with the abscess.

Fig. 7. Veins of the neck, superficial and deep.

Fig. 7. *Veins of the Neck*—superficial and deep. With emphasis as brought forward by Mosher on the anterior jugular branch which when present runs under the edge of the sterno-cleido-mastoid, the facial veins, lingual, and superior thyroid veins.

Fig. 8. *Deeper Neck dissection to show the surgical significance of the great horn of the hyoid bone as emphasized by Mosher.* To quote from his article, "I am always grateful for a landmark which can be both seen and felt. Such is the tip of the great horn of the hyoid. Out of sixteen major structures of the neck only three—all nerves—namely, the glosso-pharyngeal, the recurrent laryngeal, and the phrenic—are not in relation with it. The lingual vein is

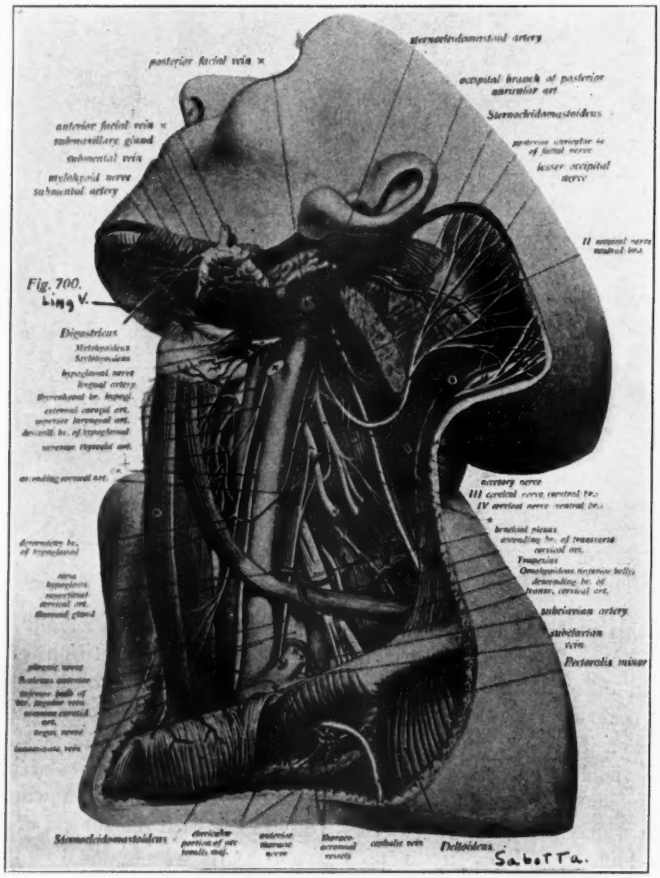

Fig. 8. Deeper neck dissection to show the surgical significance of the great horn of the hyoid bone as emphasized by Mosher.

above, the facial below, the external carotid and carotid sheath external and the hypoglossal nerve is seen to lie in the field above the horn itself with the descendens noni over the carotid sheath."

Fig. 9. (a) *Mosher Submaxillary fossa approach for deep pus in the neck.* Consisting of a generous T-shaped incision for wide exposure, to better identify important structures and ligate veins. The facial vein will not always

If it is necessary to drain a pus pocket in the floor of the mouth or at the base of the tongue an incision in the center of the floor of the submaxillary fossa can be carried forward or backward as indicated. The side of the tongue and floor of the mouth are within easy reach.

The "surgical awakening" upon realization of the surgical significance of such an approach as emphasized by Mosher is very real. Also to use his words "delayed surgery in cases of deep neck

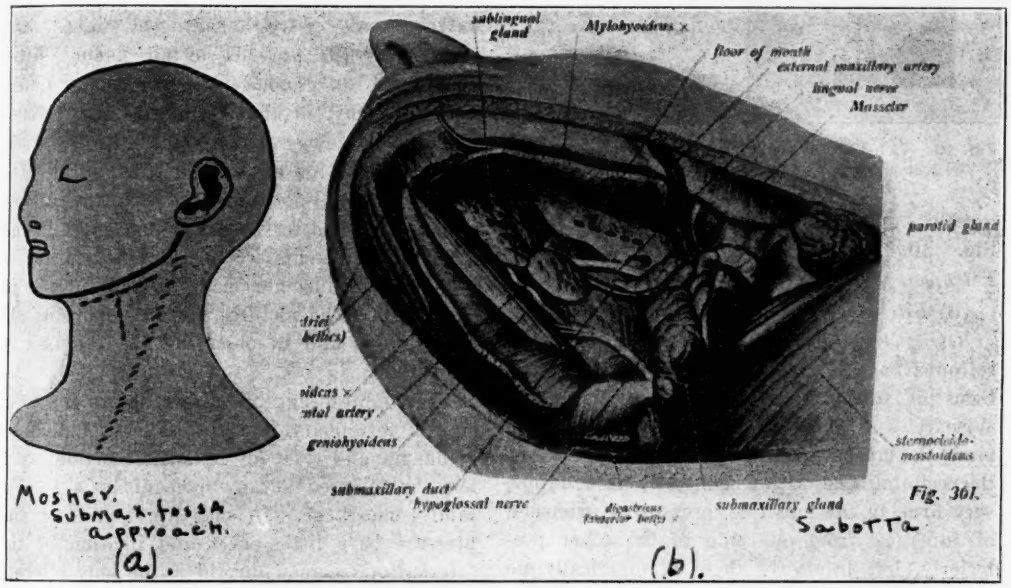

Fig. 9. (a) Mosher submaxillary fossa approach for deep pus in the neck, (b) showing relationship of submaxillary and sublingual glands to floor of mouth.

need to be cut, as it may be pushed to one side often, and the submaxillary gland turned upward with the externally maxillary artery acting as a hinge. The hypoglossal nerve is superficial and just above the tendinous V of the digastric bellies. The finger may then follow the carotid sheath in either direction. Upward the finger enters the pharyngo-maxillary fossa passing to the outside of the tonsil. Then is felt the styloid process, with attached diagonal muscles. At this point one is conscious of the sensation of a constriction with considerable resistance and passes to the outside of the styloid and up to the skull in the posterior compartment, between the stylo-glossus, the stylo-pharyngeus, and stylo-hyoid muscles.

(b) Showing relationship of submaxillary and sublingual glands to floor of mouth.

suppuration is disastrous and unrecognized cases occur daily."

Watson Williams recommends opening the parapharyngeal abscess or "quinsy that isn't" through the mouth, *where possible.* There is no question that many abscesses in this location open spontaneously and it is perhaps significant that the patient usually says, "It burst in the throat," when we have endeavored to open a peritonsillar abscess but failed to locate the pus. The abscess was probably not a true peritonsillar abscess at all—that is, located between the sinus tonsillaris and the capsule, but posteriorly in the lateral wall of the pharynx. It seems logical where a definite area of pointing can be made out, and one is suspicious of suppuration, to incise immediately behind the posterior pillar, at the level of the lower end of the tonsil, and use

a blunt curved forcep directly outward or a trifle forward in an endeavor to locate the pus. Failing this, one proceeds with the external route.

Fig. 10. (a) Lateral roentgenogram of retro-pharyngeal abscess, (b) site of external incision.

Fig. 10. (a) *Lateral Roentgenogram of Retropharyngeal abscess.*

(b) *Site of external incision.*

Retropharyngeal abscess. Anatomically the retropharyngeal space is ideally situated as a focus of infection. Superiorly, as shown by Wishart, the subpharyngeal connective tissue binds the mucosa firmly to the basilar process of the occipital bone, with a connective tissue raphe, very firm, in the mid line, preventing extension of infection from one side to the other posteriorly, but inferiorly there is practically no downward limit. The boundaries of the fossa show that it is open to infection from all sides. From anatomical consideration it may be seen that pus may (a), drain spontaneously into the pharynx, (b),—burrow laterally into the parapharyngeal space along the great vessels, (c),—drain down into the mediastinum, or (d),—be guided downward by the pre-vertebral fascia under the clavicle or along the sheath of the axillary vessels.

Seventy-five per cent. of such infections arise during the first three years of life, generally following some debilitating illness coupled with infection about the nose, throat, or ear, and arising as a result of infection of the retropharyngeal lymph glands. Diagnosis is made from the history, dysphagia—painful and mechanical with progressive inanition, cervical adenitis, dyspnea, croupy cough and boggy swelling of the posterior pharyngeal wall on careful, guarded palpation. Differential diagnosis should include adenoiditis, croup, laryngeal diphtheria, foreign body in the larynx, aneurysm of the carotid or ascending pharyngeal, and new growths arising from the cervical vertebrae. Mosher expressed the opinion that every case of peritonsillar or retropharyngeal abscess, associated with chills or a septic temperature, has probably a thrombosis of the internal jugular vein.

Iglauer as early as 1914 called attention to the value of lateral roentgenograms, and emphasized the bulging forward of the pharyngeal wall in cases of retropharyngeal abscess and occasionally the presence of air bubbles after pharyngeal or esophageal perforation. Later, Percy D. Hay, in 1930, published his "Monograph on Radiology of the Neck." In this study he established for measurement, a "norm," the width of the mid-portion of the fifth cervical vertebra; this diameter he designated as "C," and other measurements were made in relation to this unit. Films are made at both phases of respiration. The pictures are an important aid in diagnosis and in observing the progress of the patient.

The slightest sign of hemorrhage in the presence of retropharyngeal abscess is an indication of danger and calls for immediate action, as it may be followed at any moment by a sudden fatal hemorrhage. In such event packing and pressure have little effect and ligation of the internal or common carotid is the only alternative.

The *treatment* of retropharyngeal abscess is surgical and the abscess should be incised at the earliest opportunity, keeping toward the mid line as far as possible and using a blunt instrument. Aspiration or suction may be advisable in some cases as well as the use of the direct laryngoscope, in an endeavor to prevent aspiration of the pus.

When the infection extends to the pharyngo-maxillary fossa or deep cervical lymphatic glands, external incision is indicated. The incision is made along the anterior border of the sterno-cleido-mastoid muscle, lateral to the larynx as recommended by Dean, reaching the visceral fascia, and following this around to the prevertebral fascia, then thrusting the finger or a blunt instrument through into the abscess cavity. The posterior incision may be used where necessary, but according to Dean the anterior incision minimizes trauma to the carotid

sheath and avoids the underlying sympathetic nerve.

Bucco-pharyngeal or visceral fascia infection. This fascia surrounds the visceral space of Tillaux. In the lower part of the neck it is continuous with the pretracheal fascia, surrounding trachea and esophagus, splitting to envelop the thyroid. Above it covers the constrictor muscles and is known as the buccopharyngeal fascia. Infections from the pharynx and esophagus may penetrate this layer, swelling appearing laterally in the hyoid and laryngeal regions. Higher up, extension occurs laterally into the pharyngo-maxillary fossa. Dyspnea, hoarseness and dysphagia are present. Internal drainage with the esophageal speculum, and insertion of blunt curved forceps, using care in avoiding region of superior laryngeal nerve, may often succeed in relieving the accumulation of pus. If not, external drainage will be necessary.

Retroesophageal Mediastinitis. In foreign body work the bronchoscopist not infrequently encounters cases of esophageal perforation, occurring either from the foreign body or as a result of ill advised attempts at removal. Infection of the posterior mediastinum may be accompanied by interstitial emphysema about the root of the neck, and air bubbles may at times be seen in the lateral roentgenogram, as well as displacement of the esophagus forward. The symptoms are those of extreme dysphagia, pain, high fever, rapid soft pulse, sometimes tenderness along the great vessels, and stiffness of the neck. With increasing symptoms and evidence of posterior mediastinitis it is advisable to perform a cervical mediastinotomy,—incision extending from opposite the thyroid notch to the sternum, along the anterior border of sterno-cleido-mastoid muscle. Following the lateral aspect of the esophagus, the finger enters the posterior mediastinum. Two small catheters are introduced for drainage. Suction may be applied to the tubes as recommended by Furstenburg, or irrigation may be performed as recommended by Lewis. As pus in the retroesophageal space remains behind the esophagus to the root of the neck, and below this surrounds the esophagus, incision on *either* side will drain the posterior mediastinum. Contrary to the general belief the mediastinum is quite tolerant to infection, and the prognosis is at least 70 per cent. good providing surgery is instituted fairly early.

Deep Cellulitis of the Neck. Deep cellulitis of the neck may occur as a descending extension from above or from suppuration of the deep cervical lymph nodes lying along the internal jugular over the carotid sheath. In the presence of sepsis and induration, the incision should be made well anterior to the sterno-cleido-mastoid muscle, glands removed and vein inspected for thrombophlebitis. In operating on cases of this kind Marschick recommends his method of prophylactic mediastinotomy. "After incision from below the mastoid tip to the sternum, the vascular sheath is reached at the lower end of the incision by blunt dissection and this *anterior collar mediastinum* is tamponed with a strip of iodoform gauze. Proceeding upward the omohyoid is cut and by lifting the thyroid forward

Fig. 11. Ludwig's Angina.

the *posterior collar mediastinum* is reached. Gauze is tamponed here. After tamponing, the original source of the pus is sought through the upper part of the incision, and jugular ligated if necessary."

Fig. 11. *Ludwig's Angina.* Another form of cellulitis may occur in the sub-mental region: The so-called *Ludwig's* angina, which various authors have defined differently. The definitions all agree that the sublingual space must be involved to constitute true Ludwig's angina. Ashhurst and Davis insist that an inflammatory reaction be present in the upper part of the neck. In the early stage the disease is probably within a definite anatomic space as pointed out by Blassingame. Later submandibular involvment by contiguous extension may

occur. The floor of this original space is the mylo-hyoid muscle; its lateral walls the bodies of the mandible; posterior wall, the muscles which unite to form the base of the tongue and the deep part of the submaxillary gland; and, as its roof the tongue and buccal mucosa. Ashhurst emphasized the fact that Ludwig's angina is *a cellulitis and not a lymphangitis.* The origin of the disease is practically always within the lower gingival borders, usually around the teeth, and within the floor of the mouth. There occurs, in the presence of infection,—elevation of the tongue, and redness and edema of the mucous membrane. When confined to one side the tongue is pushed to the opposite side. If bilateral, or near the mid line the tongue is pushed up. Marked discomfort, painful swallowing, dribbling of saliva, and embarrassed respiration are frequently present. Externally there is the characteristic *board like swelling—non-fluctuating but markedly tender.* Septic temperature and moderate leucocytosis coexist.

Fig. 12. *Approach to Ludwig's Angina.*

sometimes be evacuated by an incision within the floor of the mouth;—but when below, deep

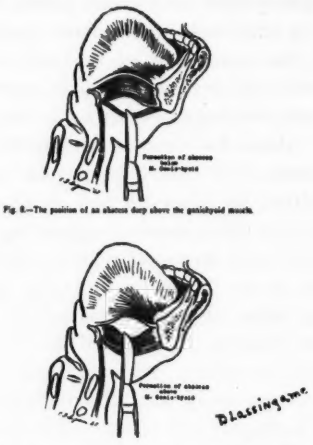

Fig. 12. Approach to Ludwig's Angina.

external incision is indicated. Ashhurst recommends three incisions as systematized by G. G. Davis, in bilateral involvement. (a) The first, in the mid line, superficial, with the insertion of long curved forceps through to the floor of the mouth, and the pulling down of a long rubber tube from the mouth to the neck, each end being

Fig. 13. Case Ludwig's Angina.

The *treatment* is thorough surgical drainage of the infected area. The abscess cavity may be pocketed above or below the diaphragm of the mylo-hyoid muscle;—if above, the abscess may

fixed by a safety pin. (b) The second, when retromandibular involvment is occurring, is made antero-posteriorly below the angle of the jaw, through skin and platysma with insertion of curved forceps through the submaxillary space and out through the mucous membrane opposite the tongue, with the insertion of drainage tube as before. (c) The third, similar to the second, on the opposite side, if accumulation is bilateral —rarely necessary. Personally, I feel that Mosher's submaxillary approach, using possibly only the horizontal limb of the T incision, is preferable for the posterior drainage rather than the blind insertion of curved forceps. There is less likelihood of injury to important anatomical structures. Also, there is possibly some question as to the advisability of carrying the incisions into the mouth, for fear of further mixed infection from the oral cavity. Edema of the larynx may indicate tracheotomy; the indication may not, however, be so much from an edema of the larynx as from blocked respiration from the enormous upward displacement and swelling of the tongue.

Fig. 13. *Case Ludwig's Angina.*

CONCLUSION

Dissecting suppurative processes in the neck follow definite fascial planes. Familiarity with the surgical anatomy, courage and decision are necessary to cope successfully with such cases. Timely diagnosis and knowledge of the fascial line of least resistance against the dissecting process is all important. Institution of proper surgical drainage at a sensible time will save many patients who might otherwise die of some fatal complication.

In the words of Thomas Carmody of Denver, "Continue the hot poultices to bring about fluctuation in deep cervical infection and the abscess will probably open about three days after death." And a final word of admonition:—in operating, one should make an adequate incision, *stay out of the muscle sheaths, use blunt dissection, see the veins*—retracting them where possible or cutting between ligatures, and know the relations of several anatomic landmarks, so that, where deep induration exists, the hand may be steadied by the recognition of a few.

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DISCUSSION

Dr. Harry Woodruff, Joliet: It would seem proper for me to report a case in connection with this paper. A number of years ago a patient was referred to me for a very severe pain in the neck, temperature, etc. I put him in the hospital. The history was that he was a farmer, and was threshing barley, probably running about and shouting, and something entered the mouth. A few days later he had this pain, and after several days was sent to me. Having a great respect for the anatomy of the neck, not being a general surgeon and doing neck operations, and feeling very definitely that I had a deep cervical abscess, I used an aspirating needle and followed that with a trocar and succeeded in getting satisfactory drainage. Pus escaped and he was relieved of the symptoms, but the discharge continued for quite some time, so long that it began to look as if it would not heal. Then one day in washing it, came this barley beard. The theory was that he drew this through the duct into the parotid gland where it caused infection and this pus. I have had some of these deep abscesses from other causes.

I would not for a moment disparage the careful study and description Dr. Ford has given us of the anatomy of the neck, but I think it serves to impress us with the fact that if we are not doing neck surgery right along it is rather a dangerous procedure to attempt a cutting operation. It would be for me, so in the few cases I have had I have followed the same method with entire satisfaction. Perhaps it is not as scientific as going in with a knife, but it leaves no scar, and you can by following the aspirating needle with a trocar, get sufficient drainage with no damage to the deep vessels.

Dr. H. L. Ford, Champaign (closing): I appreciate very much Dr. Woodruff's citation of his case. Per-

sonally, however, I should hesitate more to insert blindly a needle or trocar into one of these deep neck abscesses than to openly expose the area of danger, usually by the submaxillary approach. Then one is not apt to injure vital structures. However, I do feel that a thorough understanding of the anatomy of the deeper neck structures, and blunt dissection with Mayo scissors, and avoidance or cutting of veins between ligatures is all important.

(Slide—Case of Ludwig's Angina.) This one case I present merely because it is so recent. A Ludwig's Angina following extraction of a lower right molar with swelling of the floor of the mouth involving both sides within twenty-four hours. Incised within floor of the mouth by family physician at the end of forty-eight hours, dark blood being obtained, a frequent finding according to Ashhurst;—operated on two days ago, with temperature of 103.6 and danger of impending laryngeal edema, insertion of rubber tubes as you see in the picture—above the level of the genio hyoid. Temperature this morning, forty-eight hours later, 99.4; serous discharge from the tubes and swelling subsiding. Patient was also given potassium bismuth tartrate intramuscularly.

MEDICAL ECONOMICS*

R. R. Ferguson, M. D.

Chairman, Advisory Committee Woman's Auxiliary, Illinois State Medical Society

CHICAGO

A speech is an after dinner affair so I am not giving you a speech. I am going to select individuals who are here today for a heart to heart talk about three or four different subjects. The rest of you may listen in as long as you are here anyway. The field of "Medical Economics" is too large to cover in a short talk, so I will just pick out for discussion some of the important subjects of special interest to you.

Mrs. Cole—I am going to talk to you for a few minutes about the early days of the Auxiliary. I can remember when an auxiliary was first talked about in the State Council. Doctor Harold Camp and Doctor Chapman had heard something about an auxiliary for the State Medical Society, but none of us seemed to know very much about it or its purpose. We talked over the subject and decided we did not want an auxiliary because we thought the women would probably run away with the State Society. We did not see the good in an auxiliary at that time. So things went along very quietly for two or three years. Then some of us were wise enough to believe there was a place for an auxiliary to assist the Society and we finally decided to try and help guide an auxiliary in the right paths. You know the history of the Auxiliary since then. I wish that we had started earlier. Your organization today is giving splendid service to the Chicago Medical Society and State Medical Society and as time goes on your Auxiliary will continue to grow. I think Chicago is one of the most difficult places in the country in which to organize an auxiliary since it is scattered over such a large territory and because we have fifteen branches besides the Central Society. You are to be congratulated on your membership and your work.

I will now talk to Mrs. Cubbins on the need of such an organization as the Auxiliary. It can help counteract propaganda detrimental to the medical profession and the people. It can help stop the exploitation of the medical profession and see to it that corporations are not allowed to practice medicine. The practice of medicine is conferred upon the individual after years of study, research and examination. Corporations cannot take the place of the individual and should be denied the privilege of practicing medicine. Another thing pertinent to public health is the prescribing of patent medicines over the radio. Many of the old remedies are being revived and one of the favorites is "Peruna," which used to be advertised in all church papers. Piso's consumption cure is another but now cures bronchitis! They are both back on the market with radio advertising. The new Food and Drug Bill known as the Tugwell Bill is now before the country. I don't know what you think about the bill but I believe we should get behind it and work for the protection of the people as well as ourselves.

Mrs. Solomon—Have you heard of the Committee on the "Costs of Medical Care?" I wonder if you know how much damage that Committee did to the medical profession in this country. For four or five years it sent out advance material for publication that was detrimental to the medical profession. We in the State Society saw the direction of its investigations from the beginning and it could be noted in the first clippings that came out that it was not going to be a constructive piece of work but rather a knock at the medical profession. The Committee (self-appointed) did not include the

*Given before the Woman's Auxiliary of the Chicago Medical Society January 3, 1934.

general practitioners of medicine but Ph.D.'s, accountants and public health officers. Finally a few men, among them Doctor M. L. Harris, Doctor West and others were added to this committee. In the final report of the committee these doctors stood up for what they thought was right and tried to get proper protection for the people and the medical profession and brough in a "minority report" which has been quoted more than the Majority Report.

Mrs. Vanderslice—Let us consider two of the many foundations, the Milbank and the Rosenwald Foundations. We have great respect for the many fine things done by Mr. Rosenwald, such as the Industrial Museum on the south side, but such funds have also done many things detrimental to the medical profession. The Public Health Institute represents a thorn in the side of the medical profession and is at least encouraged by the Rosenwald Foundation. The Milbank Foundation contributed to the committee on "Cost of Medical Care." When you tear down the medical society you are doing serious damage to the health of the community. The health of a country is important and is the most valuable asset to the nation next to the government itself.

Mrs. Brumbach—Big business, banks, real estate, brokers—all have fallen down completely in the last five years. Everything that we have had, except government bonds, is almost worthless today. Our greatest men could not stop the terrible debacle through which we are going. Now President Roosevelt says that while we may not know just where we are going, we are on our way. But where to? No one knows. Suppose that medicine had fallen down as business has. Chicago would be depopulated in less than 10 years. New Orleans and New York would have bubonic plague, yellow and typhoid fever. The whole country would be in a terrible condition as in the dark ages. But medicine has not fallen down. Medicine has carried on during this period just as always. It has done its work well with little pay and will continue to do it, not until the depression is over but on and on to the end of the world.

Now, instead of talking to individuals, may I talk to you as a whole and perhaps include the county auxiliaries outside of Cook County. I want to stress four points which will help you in your Auxiliary work.

1. Contacts. The Educational Committee has been working for many years and it is concerned with all medical educational work. The Committee helps make contacts which we must have with every organization. You can increase your contacts in your women's clubs. You should be on committees so that you can help guide programs. You should belong to Parent Teacher Associations and local societies in your particular neighborhoods. All of these contacts are so important. In the Woman's Club in my district when illness kept my wife at home, a Doctor P. L. Clark of the south side came out and distributed literature condemning the medical profession and lauding his type of treatment. That program should never have been permitted in the club. The clubs need someone to guide them and you can do it.

2. I want you to become acquainted with our Medical Journals: In the ILLINOIS MEDICAL JOURNAL, The *Chicago Medical Society Bulletin*, Editorials in the *Journal, A. M. A.*, you will find many articles of help to your organizations. It is a means of disseminating information to Auxiliaries. You will find in your Journal reports on foods and nostrums and the editorials by Doctor Charles J. Whalen will keep you in touch with medical affairs. In these Journals you will find the answers to many puzzling statements that may be made by your friends and which probably need clarifying. Doctor's wives must be able to answer intelligently and discuss with knowledge the subjects brought up by the laity.

Knowledge is power. If every member of the Auxiliary would make it her business to keep herself informed, and informed intelligently and accurately on medical subjects she would do a great deal to overcome the statements made in newspapers and magazines, over the radio and by unqualified lecturers.

3. Make use of your State Medical Society. At the time Rush Medical College and the University of Chicago became engaged, about 1897, the value of the Presbyterian Hospital was discussed. You cannot place a money value on a hospital that has taken many years to build up. One million or even three million may be too little. It is not the buildings that are valuable but the personnel and the staff. So we have in the Educational Committee of the Illinois State Medical Society an organization that

we have built up at a cost of more than $100,000 for the benefit of the public in the eleven years that we have been in existence. The women of the Illinois Auxiliary are much more fortunate than other state auxiliaries in having at their disposal the services of the Educational Committee. This Committee serves as a clearing house for health information and is the contact Committee for the medical profession and the laity.

Here you will find a storehouse of information on practically every health subject. The clipping files contain not only articles from medical journals but from all the better lay journals, as well as copies of radio talks, lectures and bulletins prepared by prominent physicians and health workers throughout the country. This material is compiled into package libraries, and is at the disposal of any interested person in the state. The Committee does not publish or print pamphlets or bulletins—it simply collects those prepared by other groups. Printing is very expensive and the Committee feels that it is not necessary to use in this way the small appropriation given to it to carry on a program. The American Medical Association and other organizations have bulletins and publications which may be secured for distribution, some of them free and others sold for small amounts.

If the members of the Auxiliary are ever called upon to prepare papers for clubs, they may obtain wonderful help by using one of the package libraries on the subject of their choice.

The Speakers' Bureau of the State Medical Society has served as an example and model to other State Societies. The Educational Committee has spent several years in building up a recognized list of speakers on popular health topics. This Speakers' Bureau has been widely used throughout the State, but the service can be considerably enlarged with the support of the Auxiliary. Let your friends know of this service which is given to the public by the doctors at their own sacrifice of time and money, in order that we may all become acquainted with the great advances in medicine, the new discoveries, etc. By securing speakers through the Bureau, the personal angle is overcome and for that reason we think it best to refer all calls to the Committee rather than to suggest individual speakers.

The Illinois Federation of Women's Clubs, the Parent Teacher Associations, the Presidents of our colleges, the superintendents of our schools all recognize the Speakers' Bureau of the Illinois State Medical Society. The Woman's Auxiliary should seek to promote its use whenever possible and that should be before every club to which the individual members belong. It seems incredible that an osteopath or chiropractor should appear before a club to which a doctor's wife belongs without at least some very definite protest.

As you all probably know the Educational Committee sponsors at the present time five radio talks every week. Copies of these talks are on file in the office of the Committee and should be very interesting for Auxiliary meetings. They are all ten minutes in length.

The Committee has very close affiliation with the larger recognized groups of the State and we value these pleasant relations and wish nothing to interfere with them. We wish you to become better acquainted with our many friends.

4. You can do a lot to help organize new Auxiliaries in the State. I had an inquiry a few days ago from downstate asking if it was all right for two adjoining counties to join hands and make one Auxiliary. I could hardly answer the letter quickly enough to say yes. We want every Auxiliary possible throughout the State. The County Societies need them.

The Woman's Auxiliary has passed through the experimental stage and is now well established with a definite contribution to make to organized medicine. The fields of work and interest are necessarily limited but they are certainly broad enough to appeal to every doctor's wife in the State.

If you are to accomplish your high objective you must discard individualism and establish a partnership, not only among yourselves but a partnership with the medical profession. This is especially true in such an organization as an auxiliary to a medical society. By being banded together with a common purpose, the Auxiliary can be called upon by the medical profession at all times. It is easier to call upon a group well organized to assist in legislative propaganda, etc., than it is to call upon many individuals.

Every county should be organized where the medical profession is willing, and that is important, for in every piece of work carried on by the Illinois State Medical Society, support

of the local county medical society must be first secured. Then women must be found to take the lead. The Auxiliary is for all doctors' wives, not for a few who are willing to carry the load.

The personal contacts made by the women with each other will help in promoting better organizations among their husbands. President Theodore Roosevelt has said that if you are not willing to give a little time toward building up the work of an organization, then you should not belong to it. That brings up the importance of women working together for the big ideal of the Auxiliary which is "Service to the County and State Medical Societies."

THE CLASSIFICATION OF HEART DISEASE*

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Uniformity of nomenclature and uniform criteria for using the nomenclature are required for the most effective study of any kind of disease and in order that people working in different places may know that they are using the same terms for the same conditions. To satisfy these requirements with respect to heart disease, in 1923 the Association for the Prevention and Relief of Heart Disease adopted a nomenclature which it introduced into its various clinics. The American Heart Association later adopted this nomenclature. In 1932, this nomenclature was revised by enlarging the list of diagnostic titles, rearranging their order and grouping them under anatomical headings referable to the part of the cardiovascular system affected. In the 1932 edition of Criteria for the Classification and Diagnosis of Heart Disease published by the New York Tuberculosis and Health Association and approved by the American Heart Association, the criteria were also enlarged. A series of diagnostic terms for electrocardiographic interpretation with criteria for the use of these terms and a guide to radiological diagnosis were added.

"There are three main headings under each of which every patient with cardiac symptoms or signs should be classified. They are first, etiology; second, structural change; third, functional condition of the heart. In the past, as a rule, diagnosis has covered only structural or functional change; the functional ability of the heart—what the heart can do in maintaining the needs of the circulation—represents often, though not always, a more vital part of the diagnosis than does the anatomical change. Too little consideration has been given to the factors responsible for heart disease. The determination of the etiology, besides allowing for much greater accuracy in diagnosis, prognosis and treatment, aids materially in the advance of the great nation-wide movement for the prevention of heart disease." (White, P.D., and Myers, M.M.: The Classification of Cardiac Diagnosis, With Especial Reference to Etiology, The American Heart Journal, 1925, I, 1, p. 3.)

In the nomenclature approved by the American Heart Association, this plan is followed though the functional condition is divided into two parts, physiological diagnosis and functional capacity and two divisions, possible heart disease, and potential heart disease are added. From a study of the following tables it appears that a complete diagnosis should include a statement of the various structural changes that may be found in the heart or aorta, the cause of such changes, the changes in physiological function that may have resulted and the functional capacity of the patient with heart disease.

"Each diagnosis should include one or more titles from each of the groups, A, B, C and D. Should a diagnosis of normal heart be made, and a condition which might cause heart disease be found, the patient is placed in group F with a statement of the possible etiological factor. Should the diagnosis be in doubt, the patient is retained for further consideration under group E.

A. ETIOLOGICAL DIAGNOSIS

1. Anemia.
2. Arteriosclerosis.
3. Bacterial infection (specify if possible).
4. Congenital maldevelopment.
5. Emphysema, pulmonary.
6. Hypertension.
7. Other etiological factor (to be specified).
8. Psychoneurosis.
9. Reflex action.
10. Rheumatic fever.
11. Syphilis.
12. Thyroid disease.
    a. Adenoma of thyroid.
    b. Exophthalmic goitre.
    c. Myxedema.
13. Toxic agent (specify if possible).
14. Trauma.
15. Unknown.

B. ANATOMICAL DIAGNOSIS

Aorta and Pulmonary Artery

1. Aneurysm of aorta (specify location).

*Read before the Section of Medicine, Illinois State Medical Society, May 17, 1933, in Symposium on Heart Disease.

2. Aortitis.
   a. Without dilatation.
   b. With dilatation.
3. Arteriosclerosis of aorta.
   a. Without dilatation.
   b. With dilatation.
4. Arteriosclerosis of pulmonary artery.
5. Arteritis of pulmonary artery.
6. Congenital defect (specify lesion, if possible).
7. Embolism of pulmonary artery.
8. Injury (specify character of lesion).
9. Otheer disease of aorta or pulmonary artery (specify lesion).

Coronary Arteries

10. Aneurysm of coronary artery.
11. Arteriosclerosis of coronary arteries.
12. Arteritis of coronary arteries.
13. Embolism of coronary artery.
14. Endarteritis of coronary arteries.
15. Other disease of coronary artery (specify).
16. Periarteritis nodosa of coronary arteries.
17. Thrombosis of coronary artery.

Endocardium, Myocardium and Valves

18. Aneurysm of heart (specify location).
19. Atrophy of heart (specify valve).
20. Calcification of valve (specify valve).
21. Congenital defect (specify lesion, if possible).
22. Degeneration of myocardium (specify type, if possible).
23. Dilatation of heart (chambers involved may be specified).
24. Endocarditis, acute.
25. Endocarditis, chronic.
26. Endocarditis, subacute.
27. Enlargement of heart (chambers involved may be specified).
28. Fatty infiltration of heart.
29. Fibrosis of endocardium.
30. Fibrosis of myocardium.
31. Fibrosis of valve (specify valve lesion).
32. Hypertrophy of heart (chambers involved may be specified).
33. Infarction of myocardium.
34. Injury of heart (specify character of lesion).
35. Myocarditis, acute.
36. Myocarditis, chronic.
37. Neoplasm of heart (specify type).
38. No lesion of heart.
39. Other lesion of heart (specify lesion).
40. Rupture of heart (specify location).
41. Rupture of valve (specify valve).
42. Rupture of papillary muscle.
43. Sclerosis of valve (specify valve lesion).
44. Thrombosis within heart (specify chamber affected).
45. Undiagnosed lesion of heart.
46. Valvular disease, acute (specify valve lesion).
47. Valvular disease, chronic (specify valve lesion).
    a. Aortic insufficiency.
    b. Aortic stenosis.
    c. Mitral insufficiency.
    d. Mitral stenosis.
    e. Pulmonic insufficiency.
    f. Pulmonic stenosis.
    g. Tricuspid insufficiency.
    h. Tricuspid stenosis.

Pericardium

48. Adherent pericardium.
49. Calcification of pericardium.
50. Congenital defect of pericardium (specify lesion).
51. Hemopericardium.
52. Hydropericardium.
53. Injury of pericardium (specify character of lesion).
54. Neoplasm of pericardium.
55. Pericarditis, acute.
    a. Serofibrinous.
    b. Purulent.
    c. Hemorrhagic.
56. Pericarditis, chronic.
    a. Serous.
    b. Adhesive.
57. Pneumopericardium.

C. PHYSIOLOGICAL DIAGNOSIS

1. Adams-Stokes syndrome.
2. Anginal syndrome.
3. Arhythmia (undiagnosed).
4. Auricular fibrillation.
   a. Paroxysmal.
   b. Chronic.
5. Auricular flutter.
   a. Paroxysmal.
   b. Chronic.
6. Auriculoventricular block.
   a. Prolonged conduction time.
   b. Incomplete.
   c. Complete.
7. Bundle branch block.
8. Cardiac insufficiency.
9. Other arhythmia (specify).
10. Paroxysmal tachycardia.
    a. Auricular.
    b. Junctional.
    c. Ventricular.
    d. Unknown origin.
11. Premature contractions.
    a. Auricular.
    b. Junctional.
    c. Unknown origin.
12. Pulsus alternans.
13. Regular sinus rhythm.
14. Sinus arrest.
15. Sinus arhythmia.
16. Sinus bradycardia.
17. Sinus tachycardia.
18. Valvular incompetency.
    a. Aortic incompetency.
    b. Mitral incompetency.
    c. Pulmonic incompetency.
    d. Tricuspid incompetency.
19. Ventricular escape.

20. Ventricular fibrillation.
21. Wandering pacemaker.

D. FUNCTIONAL CAPACITY

1. Patients with organic heart disease, able to carry on ordinary physical activity without discomfort.
2. Patients with organic heart disease, unable to carry on ordinary physical activity without discomfort.
   a. Activity slightly limited.
   b. Activity greatly limited.
3. Patients with organic heart disease and with symptoms or signs of heart disease when at rest, unable to carry on any physical activity without discomfort.

E. POSSIBLE HEART DISEASE

Patients in whom the diagnosis of heart disease is uncertain but who show abnormal signs or symptoms referable to the heart.

E. POTENTIAL HEART DISEASE

Patients without circulatory disease whom it is advisable to follow because of the presence or history of an etiological factor which might cause heart disease. (Etiological factor to be specified as in Section B.)

Key for the Interpretation of Electrocardiograms

Sinus Rhythms

1. Regular sinus rhythm.
2. Sinus tachycardia.
3. Sinus bradycardia.
4. Sinus arhythmia.
5. Sinus premature contraction.
6. Sinus arrest.

Auricular Rhythms

7. Auricular premature contraction.
8. Auricular tachycardia.
9. Auricular flutter.
10. Auricular fibrillation.
11. Wandering pacemaker.

Junctional (Auriculoventricular Nodal) Rhythms

12. Junctional (auriculoventricular nodal) premature contraction.
13. Junctional (auriculoventricular nodal) rhythm

Ventricular Rhythms

14. Ventricular premature contraction.
15. Ventricular tachycardia.
16. Ventricular fibrillation.
17. Idioventricular rhythm.
18. Ventricular escape.

Rhythms of Unknown Origin

19. Premature contractions (unknown origin).
20. Tachycardia (unknown origin).

Impulse Conduction

21. P-R interval .20 second or below.
22. P-R interval above .20 second.
23. Incomplete auriculoventricular block, dropped beats.
24. Complete auriculoventricular block.
25. Bundle branch block.
26. QRS width .10 second or less.
27. QRS width exceeds .10 second.

Deviation of Electrical Axis of QRS

28. No deviation of electrical axis.
29. Deviation of electrical axis, right.
30. Deviation of electrical axis, left P wave.
31. Normal voltage of P wave.
32. High voltage of P.
33. Low voltage of P.
34. Split P wave.
35. P wave inverted (indicate lead by sub-number).

QRS Group

36. Normal voltage.
37. Low voltage.
38. High voltage.
39. Deep Q wave.
40. QRS slurred or splintered.

S-T (or R-T) Segment

41. S-T (or R-T) segment iso-electric at origin.
42. Elevation of S-T (or R-T) segment at origin.
43. Depression of S-T (or R-T) segment at origin.
44. S-T (or R-T) segment showing an upward or a downward inclination away from the iso-electric line.

T Wave

45. T wave upright in all leads.
46. T wave high voltage.
47. T wave low voltage.
48. T wave inverted (indicate lead by sub number).

Miscellaneous

49. Prominent U wave.
50. Artefacts.
51. Unusual conditions not listed above.

Guide to Radiological Diagnosis in Heart Disease

1. Normal Heart.
   a. Horizontal.
   b. Vertical.
   c. Hypoplastic.
   d. Globular.
2. Enlargement of the Left Ventricle.
   a. Moderate.
   b. Marked.
3. Enlargement of the Right Ventricle.
   a. Moderate.
   b. Marked.
4. Enlargement of the Pulmonic Conus.
   a. Moderate.
   b. Marked.
5. Enlargement of the Left Auricle.
   a. Moderate.
   b. Marked.
   c. Horizontal.
   d. Vertical .
   e. Left auricle appearing on the right cardiac border.
6. Enlargement of the Right Auricle.
   a. Moderate.
   b. Marked.
7. Generalized Cardiac Enlargement.
   a. Moderate.
   b. Marked.
8. Elongation of the Ascending Aorta.
   a. Moderate.
   b. Marked.
9. Elongation and Tortuosity of the Ascending Aorta.
   a. Moderate.
   b. Marked.

10. Dilatation of the Ascending Aorta.
    a. Moderate.
    b. Marked.
11. Dilatation of the Supraventricular Portion of the Ascending Aorta.
    a. Moderate.
    b. Marked.
12. Dilatation of the Aortic Arch.
    a. Moderate.
    b. Marked.
13. Calcification of the Aorta.
14. Dilatation of the Descending Aorta.
    a. Moderate.
    b. Marked.
15. Diffuse Dilatation of the Thoracic Aorta.
    a. Moderate.
    b. Marked.
16. Narrowing of the Aorta.
    a. Right high position of the aorta.
    b. Riding aorta.
17. Aneurysm of the Aorta.
    a. Ascending limb.
    b. Transverse portion.
    c. Aortic arch.
    d. Descending limb.
18. Enlargement of the Pulmonic Artery.
    a. Moderate.
    b. Marked.
19. Stasis in Pulmonary Circulation.
    a. Dilatation of the hilar branches.
        (1) Moderate.
        (2) Marked.
    b. Diffuse form.
        (1) Moderate.
        (2) Marked.
20. Widening of the Brachiocephalic Vessel-group.
    a. Moderate.
    b. Marked.
21. Pericardial Effusion.
22. Pericardial Concretion.
23. Calcification of the Pericardium.
24. Displacement of the Heart.
    a. Moderate.
    b. Marked.
25. Distortion of the Heart.
    a. Without enlargement.
    b. With enlargement.

To illustrate how satisfactory this nomenclature proves to be in an analysis of a cardiac patient, the following diagnoses are added:

—Heart Disease: A. Active Syphilis; B. Aortitis with dilatation, Aneurysm of the Ascending aorta; C. Regular sinus rhythm; D. Class 2a.

—Heart Disease: A. Inactive rheumatic fever (chorea); B. Valvular disease, mitral insufficiency and stenosis; C. Auricular fibrillation; D. Class 2b.

—Heart Disease: A. Hypertension; B. Enlargement of the heart with some fibrosis of the myocardium; C. Premature contractions, left ventricular; D. Class 2a.

—Heart Disease: A. Thyrotoxicosis; B. Dilatation of the heart; C. Auricular fibrillation; D. Class 3.

—Heart Disease: A. Arteriosclerotic; B. Coronary thrombosis with angina, recent infarction; C. Normal rhythm; D. Class 3.

—Heart Disease: A. Arteriosclerotic; B. Old coronary thrombosis without pain, healed infarct; C. normal rhythm, severe congestive heart failure; D. Class 3.

Limitation of time has made it impossible to more than outline a classification of heart disease and criteria for its use which are the most comprehensive and accurate so far devised. It should be universally adopted that vital statistics may become more intelligible, that physicians working in different parts of the country may know that they are using the same terms for the same conditions, that the accurate management of patients with heart disease may be promoted, and that the movement for the prevention of heart disease may be advanced.

ACUTE INFECTIOUS MYOCARDITIS*

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Interest in the morphological alterations of the cardiac muscle which result from the acute infections is not of recent origin. "The original observations were concerned with the form, color, and consistency of the heart muscle." Virchow described the degenerative changes of the myocardium during typhoid fever. Romberg, in 1890, first clearly demonstrated the frequency and importance of acute interstitial myocarditis in typhoid fever, scarlet fever, and diphtheria. In 1905, Schmaltz wrote, "Every type of infection of the organs of circulation is able to do damage, and there occurs a continuous change of phenomena and transitions from the lightest, evanescent changes, usually not recognized as pathological, up to severe permanent impairment, or, such as leads quickly to death, to all

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of which stages of the disease a widely different practical significance attaches."

Since these early publications there have been many contributions to the literature on the subject of acute myocardial change in the course of acute infections, specific and non-specific. Many of these have discussed, more or less extensively, particular phases of the subject such as, auriculoventricular dissociation, ectopic beats of whatever origin, various changes which are observed only in the electrocardiogram, as well as the symptoms and clinical signs suggestive of myocardial disease. Recently the electrocardiograph has been the means of obtaining certain objective evidence of myocardial involvement which would have eluded detection by the older methods of investigation. Partly to emphasize these newer features, and, partly to again direct attention to the frequent occurrence of acute myocarditis in the course of even minor infections, we present our observations.

In our experience acute infectious myocarditis has often followed diseases with a clinically mild course in which one would least expect complications of serious import. The majority of the patients had pharyngitis, tonsillitis, tracheobronchitis, or a mild influenza. This is in accord with the observations of other clinicians who have commented particularly upon the occurrence of severe cardiac complications in the most simple cases. In our series of cases there has been a preponderance of female patients, but this permits no reliable conclusion as to an especial sex predisposition because of the number of student nurses coming under our care. Nor does age seem to be a specific factor, although all of our patients were under fifty years of age, and most of them young women. All were people in good economic circumstances, and in no instance did there appear to be a special constitutional diathesis to infectious disease.

The clinical recognition of these cases is of utmost importance. The subjective symptoms of acute infectious myocarditis are chiefly those of diminished myocardial power. The onset is insidious and the disease, therefore, all the more treacherous. One may be inclined to accept the condition as an effort syndrome during convalescence such as is often observed after any illness. Yet this diagnosis is not warranted unless one is able to demonstrate that no cardiac affection exists. Complaints indicative of mild congestive failure may be elicited. Early in the clinical course these will consist of fatigue, weakness, pallor, palpitation, anxiety, and precordial aching. If the disease is unrecognized and progresses, more advanced symptoms will make their appearance. The patient begins to notice a shortness of breath, a mild orthopnea usually described as a sensation of smothering relieved by elevation, gastro-intestinal distress varying from a loss of appetite to nausea and vomiting, and a slight swelling of the ankles at the end of the day. With further myocardial insufficiency the well known symptoms and signs of advanced congestive failure will appear. Disorders of rate and rhythm may be present with or without other symptoms. Obviously the minor symptoms may be difficult to explain, and the diagnosis often depends upon graphic evidence for confirmation. Heart block of various degrees, frequent ectopic contractions, and changes in the form of the electrocardiographic complexes are the most common objective signs. In two of our cases convalescence was marked by the development of anginal disease. In one of these, in addition to the symptoms and signs of congestive failure, there occurred typical attacks of angina pectoris. In the other, there was not the paralyzing pain of a true angina, but a substernal aching upon exertion, for which we have used the term "stenocardia."

The objective findings in acute infectious myocarditis are quite as illusive and deceptive as are the subjective symptoms, if one does not consider the possibility of such a complication. The persistence of a slight intermittent fever, with an afternoon rise of temperature rarely over one hundred degrees, may be completely overlooked. The patient is observed during the acute stage of the infectious disease, but with the subsidence of the more distressing symptoms, the clinical course is not followed accurately, and the low grade fever is missed. A leucocytosis with a predominance of polymorphonuclear cells, if sought for, usually may be found. The general appearance of the patient suggests that all is not well. There is an expression of worry and fatigue especially in the older patients. A moderate cyanosis may be detected as a sign of a weakened myocardium. The examination of the heart itself frequently reveals no abnormality. The gross irregularities of rhythm are easily detected, but conduction disturbances cannot

be diagnosed in most instances without instrumental assistance. The borders of the heart will not be changed perceptibly except in the most severe cases where dilatation has occurred. A diminution in the intensity of the tones is a sign to which too little importance is attached, and yet it may be the only evidence of poor function. If murmurs develop during the course of the illness, though we have found this to be an infrequent occurrence, they may be explained thus: apical systolic murmurs probably mean involvement of the mitral valve by endocarditis, basal murmurs are without significance. It is by means of the electrocardiograph that we are able to change the diagnosis from one of conjecture to one of certainty in the majority of cases. Auriculo-ventricular block with simple prolongation of the conduction time as evidence of myocardial pathology, can be demonstrated only by graphic means. Aberrations in the Q-R-S complexes are commonly seen, manifested by slurring, low amplitude, and R-T or S-T interval abnormalities. A change in the T waves is important. These may be of low amplitude or inverted. Such evidence cannot be ignored. It confirms the diagnosis especially in cases with doubtful clinical signs and symptoms.

The diagnosis of the disease is therefore possible. The presence of minor symptoms and signs of heart disease following an acute infectious disease should prompt one to an exhaustive study by every available means, to confirm the presence or absence of organic disease. As we have indicated, the electrocardiograph is of great value, and we urge that those who have an instrument available make prompt and frequent use of it. It is not sufficient to conclude that there is neurocirculatory asthenia, and to be satisfied with such an opinion, without objective study to rule out actual pathology.

The management of these cases is simple in so far as the active treatment is concerned. However, one will frequently find it difficult to convince the patient of the seriousness of an illness which presents in some instances only minor symptoms, or none at all. It has been our custom to enforce absolute bed rest until there have been eight to ten days of normal temperature, and the pulse has been stable at a normal rate. The patient is then allowed to be out of bed, at first only to sit up, and finally to assume normal activity gradually. During this time the temperature should be observed carefully, for one will sometimes find that fever recurs, whereupon the regime must be begun anew. Digitalis may be prescribed for the relief of the symptoms of congestive failure. A warning may well be added against the removal of teeth, tonsils, or any attack upon a presumed focus of infection. When this is done during the febrile state, or too soon thereafter, serious harm may result. Adequate rest is the main requirement in the therapy of the disease.

CASE HISTORIES

Case 1. A woman, aged 44, entered the hospital because of an acute pelvic peritonitis. She gave a history of an irregular and rapid heart beat, and some swelling of the ankles since a cold the previous winter. The physical findings relative to the heart revealed an irregular rhythm with an occasional dropped beat, the area of cardiac dullness just outside the mid-clavicular line on the left, and distant heart tones. The electrocardiogram showed a sinus rhythm with a rate of 100, a P-R interval of 0.26 seconds, the Q-R-S complexes in lead three split and slurred, and diphasic T waves in all leads. Four days later the only change in the graph was an increase in the conduction time to 0.34 seconds.

Case 2. A student nurse, aged 19, entered the hospital on February 19, 1932, with an attack of influenza. Following this the pulse remained rapid and weak, the fever persisted, and leucocyte count became as high as 13,050. There was a distinct though not loud musical murmur, systolic in time, about an inch above the apex. The electrocardiogram of February 27 showed the Q-R-S complexes slurred in lead one, isoelectric T waves in lead one, and T waves of low amplitude in leads two and three; that of March 10, T waves of low amplitude in lead one, diphasic T waves in lead two, and inverted T waves in lead three; and that of March 28 upright T waves of low amplitude in all leads. This patient was seriously ill with pneumonia in January, 1933. An electrocardiogram taken after recovery from this illness was essentially normal.

Case 3. A student nurse, aged 21, was hospitalized in March, 1932, for seven days because of an influenza. An electrocardiogram showed diphasic T waves in lead two, and inverted T waves in lead three. Six months later she was admitted with an attack of nausea, vomiting, frequency of bowel movements, and severe headache. She had not felt well since the illness in March. After one week the symptoms subsided and she was without complaints, but fever, tachycardia, and leucocytosis persisted. The only objective localizing findings were those in the electrocardiograms. Abnormalities of the T waves were present at all times. She was kept in the hospital thirteen weeks. An electrocardiogram taken three months after discharge was entirely normal.

Case 4. A woman, aged 34, was admitted complaining of anorexia, malaise, exhaustion, easy fatigue, short-

ness of breath upon exertion, soreness and aching in the chest, palpitation, a rapid heart rate followed by an unusually slow rate, and pains in the hands, knees, and shoulders. She had had an acute tonsillitis for one week a month prior to admission. Examination revealed an irregular rhythm with frequent ectopic beats, distant heart tones, a heart rate of 60, and a palpable, tender liver. No murmurs were audible. There was a moderate leucocytosis. During the five and a half months that she spent in the hospital there appeared the signs of aortic and mitral endocarditis. The initial electrocardiogram showed ectopic beats of nodal origin producing an almost complete bigeminal rhythm, a P-R interval of 0.24 seconds, and slurred R waves of low amplitude in lead one. Eight days later there were no ectopic beats, the P-R interval was 0.22 seconds, the R waves were slightly slurred in all leads. In the seventh week some of the complexes showed a prolonged conduction time with frequent failure of ventricular response. A few days before discharge the only abnormality noted was a slight slurring of the Q-R-S complexes.

Case 5. A man, aged 27, complained of fatigue, headache, shortness of breath, precordial distress, and a rapid pulse following a cold seven weeks prior to admission. Two weeks before entrance he had fainted. Examination revealed a slight cyanosis, a systolic basal murmur, and distant heart tones. There was no fever, the pulse rate was normal, but there was a persistent leucocytosis. The electrocardiogram showed slurred R waves in lead one, slurred S waves in all leads, and depressed T waves in lead three.

Case 6. A woman, aged 33, complained upon admission of shortness of breath during the day and sudden attacks at night, pain over the heart, swelling of the ankles, and a rapid and irregular heart beat. These symptoms appeared after an attack of influenza. Examination revealed a moderate cyanosis of the lips and nail beds, a faint apical systolic murmur, distant heart tones, and a slight bilateral edema of the ankles. There was a six to seven per cent. enlargement of the heart. The electrocardiogram showed a slurred R wave in lead three, and an inverted T wave with an early take-off from the descending limb of the R wave in the same lead. The diagnosis of myocarditis in this case was based upon the clinical findings.

Case 7. A woman, aged 46, following an attack of influenza noted a burning sensation over the chest and neck, aching in the arms, shortness of breath upon exertion, weakness, and a substernal aching upon exertion and exposure to cold air. A roentgenogram revealed a ten per cent. enlargement of the heart. In the electrocardiogram the T waves were practically isoelectric in all leads. This was probably an acute myocarditis superimposed upon an early myofibrosis.

Case 8. A woman, aged 42, was readmitted to the hospital after apparent recovery from an attack of influenzal pneumonia. She complained of a persistent cough, shortness of breath upon exertion, a sense of constriction within the chest, precordial pain, and pain radiating down the left arm. Examination revealed a definite cyanosis, and moist rales were heard at the base of both lungs. An x-ray film showed an exaggerated bronchial tree, and a heart configuration suggestive of a mitral lesion. The electrocardiogram was normal. While in the hospital she had an attack of acute appendicitis, was operated upon, and was without complaint for ten days. She then experienced two attacks of angina pectoris, relieved by nitroglycerin, and complained of dyspnea, and had a persistent substernal distress. The electrocardiograms remained normal. She was sent home to convalesce. Two years later she is still confined to bed most of the time. Upon the basis of her history, although there was no evidence of mitral disease, we are inclined to believe that there had been previous damage to the myocardium.

Case 9. A student nurse, aged 21, was admitted with an influenzal bronchopneumonia. An electrocardiogram on the third day showed a slurred R-S of low amplitude in lead one, T waves of low amplitude in lead one, diphasic T waves in lead two, and inverted T waves in lead three. The following day the T waves were of lower amplitude in all leads. The T waves were erect in all leads but of low amplitude on the eighth day. On the seventeenth day the T waves were inverted in lead one, erect but of low voltage in leads two and three, and on the twenty-fourth day they were inverted in all leads. Six weeks after her discharge from the hospital, the electrocardiogram was essentially normal.

Case 10. A student nurse, aged 23, was admitted to the hospital shortly after recovery from an influenza with an acute pharyngitis of marked severity. These symptoms subsided after ten days but the fever and leucocytosis persisted. The only localizing findings were in the electrocardiograms which were taken repeatedly. These consistently showed a slight slurring of the Q-R-S complexes and an elevation of the R-T interval in leads two and three. This patient was hospitalized fifty days and discharged after seventeen days of normal temperature. An electrocardiogram taken one month later showed some improvement. The R waves were slurred in lead one and slurred on the downstroke in lead three. The T waves in leads two and three had an early take-off but from the base line. The patient had resumed active duty and had no complaints.

Case 11. A man, aged 29, was sent to the hospital for observation because of an irregular pulse. Three weeks prior to admission he had had an acute upper respiratory infection. Examination revealed a heart rate at the apex of 114, and a pulse rate at the wrist of 90. After exercise the apex rate was 122, and that at the wrist 100. There was no fever. The leucocyte count was 11,350. The electrocardiogram revealed a partial heart block manifested by the P-R interval lengthening progressively to the completely blocked ventricular contraction, giving rise to the "Wenckebach" periods at the time of the dropped beats. An electrocardiogram taken two months later was essentially normal.

CORONARY ARTERY DISEASE*

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When one speaks of coronary artery disease it is well to remember that he is not speaking of a disease entity, but only of the immediate effects upon the heart of a much more generalized disease—arteriosclerosis.

As a consequence, only too frequently those presenting essentially cardiac symptoms become either disabled or succumb to the effects of arteriosclerosis in some other organ, as the brain (apoplexy), the kidney (uremia), or through peripheral gangrene.

Since arteriosclerosis, although exceptionally affecting those in the earlier decades of life, is a disease involving increasing numbers of individuals in each of the later decades of life, becoming practically universal after the age of 60, we may expect to find the most frequent evidence of coronary artery involvement after that age.

Because there are no typical physical changes in coronary artery disease, the history obtained from the patient is often the only reliable data we have. The electrocardiographic changes peculiar to coronary artery disease, namely, widening and distortion of the Q. R. S. complex and not infrequently inversion of the T, offer definite information of disturbances of intraventricular conduction. However, when one has seen many patients with most marked changes in the electrocardiogram go for years apparently in excellent health, or, again, others with little or no evident change in the electrocardiogram who may die suddenly or suffer severe myocardial failure, the more of these one sees, the more cautious he becomes in the interpretation of slight changes in the electrocardiogram.

After all, our judgment of the particular individual is based on observation of his physical reactions, his changes as shown on successive physical examinations, and if such changes are corroborated by the electrocardiogram, well and good; if not, should a patient be damned because someone diagnoses coronary artery disease from the electrocardiogram alone?

Arteriosclerosis of the coronary arteries may be symptomless or without physical evidence. When manifest clinically, it occurs as two outstanding syndromes, which may occur alone or in combination, namely, heart pain, angina pectoris, or increasing failure of the myocardium. Apparently the only stimulus causing a painful reaction in the myocardium is a diminution or complete stoppage of blood flow through a coronary artery or one of the branches.

Recently, a 40-year-old woman was seen with a rapidly progressing aplastic anemia. She had never had an attack of angina pectoris. When the red blood cell count fell below 2,000,000 per cubic millimeter, the exertion of using the bed pan or turning in bed was sufficient to produce a typical attack of angina pectoris, which was promptly relieved by 1/100 grain of nitroglycerin. Following a transfusion with whole blood and an increase in the red blood cells to 3,000,000, the attacks of precordial pain disappeared, to reappear when the red blood cells again fell to 2,000,000. The same story recurred three times before and after three whole blood transfusions.

At necropsy the coronary arteries were found to be normal. In this case there was not a decreased flow of blood through narrowed coronary arteries, but a decrease of the oxygen-carrying elements.

A young woman, 25 years of age, suffering with an extreme thyrotoxicosis, and having a heart rate of 160 to 180 per minute, frequently complained of a typical angina pectoris pain upon slight exertion. Since recovery from the thyrotoxicosis she has had no further attacks. Her cardiac pain was not due to diseased coronary arteries, but to a relative decrease in coronary flow in a rapidly beating heart.

Both Wenchebach and McKenzie believe that the discomfort experienced by athletes before acquiring the second wind is the same as that felt in an attack of angina pectoris. In fact a patient of mine volunteered the information that as a young man of 20 years he experienced after extreme exertion a pain exactly like that he now feels with an attack of true angina pectoris.

When one observes the marked variation in the location, extent and severity of involvement in arteriosclerosis, it is not surprising that there is not only variation in the severity of pain after exercise, but also marked variation in the amount of exertion required at various times to

*Read before the Section on Medicine of the Illinois State Medical Society, Peoria, May 17, 1933, in Symposium on Heart Disease.

bring about an attack of pain. Accordingly, great differences in the severity of pain is observed, varying from very slight substernal or precordial pain to the most extreme anguish. A very important factor in such variability of pain is the size of the coronary artery involved; the larger the artery, the more severe the pain.

A second variable factor, not only in different hearts but probably also varying at different times in the same heart, is the amount of anastomosis between the various arterial branches of the coronary arteries. The degree of anastomosis increases with age, and therefore the older the subject the greater the possibility of recovery from complete obstruction of an artery. At times these anastomoses are sufficiently great to prevent the formation of an anemic infarct. They certainly play a similar role in varying the degree of pain in angina pectoris.

The effects of an attack of angina pectoris are usually transitory. The attack brought on by any factor increasing heart work, emotion, nocturnal dreams, digestion, but most frequently by exercise, usually ceases promptly with rest—a rest period allowing prompt recovery of the muscle from blood want. The severe attacks may at times leave the patient severely prostrated, because of the general shock and possibly because of temporary myocardial insufficiency. Rarely, sudden death occurs during an anginal attack because the irritability of the involved area precipitates a ventricular fibrillation.

More commonly when death occurs in cases of angina pectoris it is due to coronary thrombosis. In such an accident the patient experiences an attack of pain, usually at first similar to an ordinary attack of angina pectoris, with the exception that neither rest nor the administration of nitrites gives relief from pain. There may be exceptions to the immediate effect of the nitrites. Occlusion of an artery by thrombosis is often slow, so if nitrites are given there is a sufficient increase of coronary flow to temporarily relieve the pain. I have seen periods of several hours, during which every few minutes additional doses of nitrites would relieve the pain, until the artery became completely closed, when they ceased to affect the pain.

Repeated attacks of anginal pain at frequent intervals during rest, practically always are evidence of a slowly forming thrombosis. Rarely the thrombosis never completely closes the artery, in which case the patient recovers with recannulization of the thrombus. Frequently the pain of coronary thrombosis is not referred to the same areas as those of a true anginal attack. The most frequent atypical point of reference is to the upper abdomen. As a consequence, its differentiation from acute accidents in the abdomen may be extremely difficult and at times impossible.

Probably one of the most important points in favor of a coronary thrombosis is a rapid fall in blood pressure. Acute increase in the transverse diameter of the heart is also frequently noted. When present, a pericardial friction is absolutely diagnostic, and is often heard within twelve hours of the accident.

Coronary thrombosis without pain is not a rare occurrence. It may happen during severe cardiac illness, as acute endocarditis or marked decompensation where it is overshadowed by the acute illness, and it is not suspected until discovered at necropsy. In other cases the only evidence of the attack may be an extreme dyspnea. At times when the left ventricle is involved, the dyspnea may accompany an acute pulmonary edema, with the expectoration of a foamy pink fluid. (Often the only effective method of relieving acute pulmonary edema is by a copious venesection.)

After all, only a relatively small number of cases of coronary arteriosclerosis suffer the pains of angina pectoris. For the greater number of cases the effect is the gradual degeneration of small areas of cells, which, if you wish, die of starvation and are replaced by areas of fibrosis. Therefore, the common terminology of chronic fibrous myocarditis. Such scarring, along with the diminished blood flow to the remaining more or less normal muscle fibers, leads to gradual heart failure. The symptoms of such failure are those of any cardiac decompensation, edema, ascites, hydrothorax, and dyspnea. At times the acute failure is precipitated by one of the irregularities of rhythm, most frequently auricular fibrillation, rarely paroxysmal tachycardia or auricular flutter. In other cases premature contractions or pulsus alternans may be present. Pulsus alternans is always of serious significance, with or without other evidence of serious heart disease.

We then have two syndromes, heart pain, including coronary thrombosis, and chronic myo-

carditis, both of which are due to restricted blood flow through coronary arteries which have become inelastic, fibrosed or calcareous. Fortunately, such changes are not uniform throughout the length of a single vessel, nor are all the vessels necessarily involved. So long as there are normal vessels there is the possibility of effective therapy by the use of drugs which dilate these vessels, by causing an increased flow of blood through the coronary arteries, when diastolic blood pressure is increased or the coronary vessels are dilated, or both.

There are two groups of drugs which increase the rate of flow through the coronary arteries by increase of their calibre:

1. *The Nitrites:* Nitroglycerine or amyl nitrite produce almost instantaneous dilatation of the coronary arteries and therefore relieve an attack of angina pectoris immediately. Unfortunately, the duration of their action is so short that they are of value only in the treatment of the attack. Nitroglycerine on the whole is preferable, not because it is better, but because individuals have no hesitation about slipping a 1/100 grain tablet under the tongue, who hesitate to resort to the publicity attendent upon the explosion and ensuing odor following the breaking of an amyl nitrite pearl.

2. *The theobromine group:* There is a second group of drugs that have been proved both clinically and experimentally to markedly increase coronary flow, namely, the caffeine theobromine group.

This group produces effective increase in coronary flow, neither as promptly nor to as great a degree as the nitrites, but the action is prolonged and of sufficient degree to often cause complete relief from anginal attacks.

The effectiveness of coronary dilators depends very largely upon the degree of sclerosis present. Therefore in extreme arteriosclerosis neither the nitrites nor the theobromines may be effective. In this manner the degree of effectiveness may be used as an index of prognosis. This group contains caffeine, which is the least effective of the group, which also has the disadvantage of producing cerebral stimulation.

The theobromine compounds are efficacious as coronary artery dilators, produce little cerebral stimulation, but many of them produce gastric irritation.

Metaphyllin is one of the most effective of the group, but is likely to irritate the gastric mucosa. *Theocin* (gr. x t. i. d.), *Diuretin* (gr. x t. i. d.), *Theocalcin* (gr. viiss t. i. d.) usually can be given over very long periods of time without gastric irritation. *Phyllicin* (gr. ii to iv t. i. d.), which we have used extensively is an excellent coronary artery dilator, and very rarely causes gastric irritation. When any of these compounds are taken in the middle of a meal instead of before or after, they are much less likely to produce nausea. After coronary artery disease has been diagnosed, whether angina pectoris or myocarditis, one of these drugs should be given as long as the patient lives.

SUMMARY

1. Coronary artery disease is only a part of a generalized arteriosclerosis.

2. The effect of arteriosclerosis of the coronary arteries is decrease of blood flow to the myocardium, causing either heart pain or muscle failure.

3. The nitrites and theobromine dilate the normal vessels, and thereby increase the blood flow to the myocardium.

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AURICULAR FIBRILLATION.*

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CHICAGO

Auricular fibrillation has been chosen as a subject for this discussion because of the frequency with which it is encountered as a part of cardiac disease, and also because of the serious aspect that it adds to the patient's prognosis.

Auricular fibrillation is a state of abnormal cardiac physiology in which the auricles have lost their normal contractability. The auricular musculature is in a state of fibrillary twitching from which the entity derives its name. The role of the pacemaker (Sino-Auricular Node) is usurped by the auricular activity which sends forth stimuli to the ventricles at a rate of 400 to 600 per minute. The ventricles respond to these auricular stimuli at irregular intervals. The ventricular contraction rate varies from 40

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to 180 per minute. This phenomenon is clearly registered by the electrocardiograph (Fig. 1).

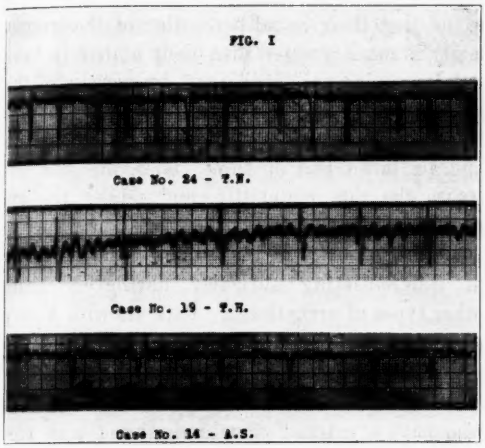

Fig. 1. The irregular wavy baseline shows the auricular activity and the larger waves are the ventricular contractions. These tracings were made by direct leads from the left chest wall.

There are two theories concerning the abnormal physiology of auricular fibrillation. The older and better known one was advanced by Sir Thomas Lewis of the University Hospital in London. His theory is concerned with what he terms "circus movement in the auricles." It implies that a stimulus arises in an ectopic auricular focus and pursues a very rapid rate and course about the venous openings in the right auricle. The other theory advanced by the school of German cardiologists has received less publicity than the theory of Lewis. They

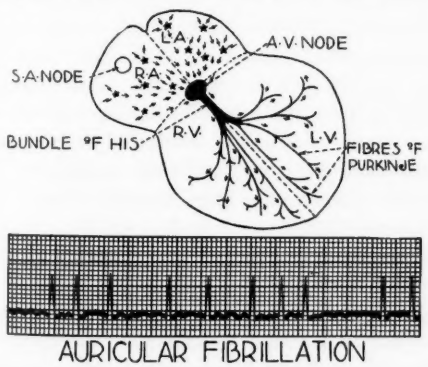

Fig. 2. Auricular Fibrillation.

advocate that there are *numerous ectopic foci* in the auricle which send out stimuli to contraction (Fig. 2). These interfere with one another so that the auricles never contract in the normal manner but are in a state of fibrillary twitching. The latter theory is the more logical one and has more abundant proof to substantiate it than that of Dr. Lewis.

From a clinical standpoint we recognize that there are various types of cardiac disease in which auricular fibrillation is present as a complicating abnormal physiological mechanism. The most frequent type of heart disease with which it is associated is rheumatic mitral stenosis. Next in frequency is hypertensive vascular disease in which auricular fibrillation develops after years of high blood-pressure. The patient who has a goiter with thyrotoxicosis not infrequently develops auricular fibrillation as a complication. Patients who have sustained an occlusion of a coronary vessel with myocardial infarction frequently develop this type of abnormal physiology. Any type of toxemia such as that resulting from prostatic obstruction may develop auricular fibrillation. It is sometimes present in the more acute infections, such as pneumonia, typhoid fever or influenza. It may result from the abuse of digitalis. Rarely, we see a patient in which there is no demonstrable structural cardiac damage.

Auricular fibrillation may be classified into two main groups:

1. Paroxysmal.
2. Chronic.

The chronic type is the more frequent but it is usually preceded by the paroxysmal type, which often escapes observation.

Perhaps it is academic for me to review the symptoms and the pathognomonic findings which characterize aucircular fibrillation. The very striking absolute irregularity of the cardiac beat at the apex or of the pulse at the wrist is sometimes sufficient to make an accurate diagnosis. Frequently, however, its recognition is not so simple.

The paroxysmal type of auricular fibrillation is most easy of detection. In these cases the onset is extremely abrupt. The individual suddenly notices that his heart begins to beat rapidly, and, if he is a careful observer, notes that it is irregular. The majority, however, fail to recognize the irregularity. The paroxysm of tachycardia may persist for only a few seconds or minutes or it may last for hours, or days, or

even become permanent. Frequently the patient complains of dyspnea, cough, tightness in his chest and sometimes collapse. Abdominal symptoms may be present with pain in the abdomen, nausea, vomiting and loss of appetite, particularly when there is acute cardiac failure and sudden engorgement of the liver. As a rule paroxysmal auricular fibrillation lasts for a short period of time and recurs at frequent intervals until finally the mechanism persists and becomes a chronic one. After a number of days or weeks of persistent auricular fibrillation the patient usually adjusts to the abnormality and is less mindful of his symptoms.

The onset of chronic auricular fibrillation is usually preceded, as has been described, by these paroxysmal attacks. However, many individuals with established auricular fibrillation present themselves for examination who have no recollection of its onset, and it would appear that it has been a rather quiet and gradual affair. This is probably not true, and it is more likely that the patient has forgotten the storminess of the onset by the symptoms which have followed. In these chronic cases, the symptoms referable to the irregularity alone are few. Palpitation may be noted and occasionally the individual has recognized that his heart beats irregularly. More often the symptoms present are those of associated cardiac failure, such as dyspnea, weakness, cough and edema of the extremities.

On physical examination, when the rhythm is studied at the apex with a stethescope on the chest, the gross and absolute irregularity of rhythm will be readily noted. Seldom are two beats of the same intensity. When the blood-pressure is taken, one detects a difference of intensity in the beats. One beat comes through loudly, the next one is weak and each one differs from its fellow. If one counts the rate at the apex and the pulse rate at the wrist a deficit of from 10 to 40 beats may be found. These findings are the characteristic picture of auricular fibrillation. When the ventricular rate varies between 60 and 80, the gross irregularity is not as obvious, and, if the rate be as slow as 40 (which is not uncommon) the irregularity passes almost unnoticed. In teaching students how to detect this irregularity, a simple method has been developed of increasing their perception. They are instructed to place the stethoscope over the chest and mark each cardiac contraction with a movement of the index finger placed within their range of vision. We have found that their visual perception of the irregularity is much greater than their ability to hear it. Increasing the cardiac rate by exercise of the patient makes the irregularity more pronounced. By simply having the bedridden patient sit up and lie down two or three times, one can increase the rate materially, and render the arrhythmia more obvious.

In the majority of cases there is no necessity of differentiating auricular fibrillation from other types of arrhythmia. Patients with a very slow rate may simulate a heart-block with a slow rate. Rapid auricular flutter must also be differentiated from auricular fibrillation. Patients who have a marked sinus arrhythmia with frequent extrasystoles may simulate auricular fibrillation. Frequent dropped beats in partial heart-block may offer the same difficulty. Differential diagnosis is best made by means of an electrocardiogram.

In general the prognosis of auricular fibrillation is serious. It is serious because auricular fibrillation usually develops in the end stage of any type of cardiac disease. The patient with valvular disease who has developed auricular fibrillation is usually near the end of his pathway. The same applies to hypertensive vascular disease. In patients with thyrotoxicosis who have developed auricular fibrillation an exception to this general rule is found. The majority of these patients, when relieved of their goiter by surgery, usually revert to a regular sinus mechanism without further difficulty. Occasionally, cases have been reported in which patients had developed auricular fibrillation without any other obvious findings of structural heart disease. Paroxysmal auricular fibrillation implies that the patient will develop the chronic form. The prognosis, therefore, depends upon the extent of the underlying cardiac pathology with the superimposed auricular fibrillation.

In considering the treatment of auricular fibrillation, I would like to point out that the discussion is directed primarily to *the treatment of this arrhythmia rather than the associated congestive heart failure and the underlying cardiac pathology.*

For the past three-quarters of a century, dig-

italis has been the accepted method of treatment of auricular fibrillation. It would be superfluous to review the value of this drug or its effect upon the cardiac mechanism. Digitalis therapy, however, is not a curative procedure in the treatment of auricular fibrillation. It modifies the abnormal cardiac physiology thus rendering it more efficient.

In 1914, Wenkebach discovered that quinine would cure auricular fibrillation. Quinidine, the chemical isomer of quinine, was found to have a similar effect in 1917, by von Frey. Following these reports numerous records appeared in the literature concerning the use of quinidine sulphate in auricular fibrillation. Cases were soon reported in which embolic phenomena had occurred and considerable fear developed concerning the use of quinidine. Dr. Paul White of Boston reviewed the frequency of embolic phenomena in patients who were converted by the use of quinidine and those who had never received quinidine. It was found that the incidence of emboli was practically the same in both series. The common practice in the past was to hospitalize patients who were to receive quinidine, fully compensate them with the use of digitalis and, after the test dose of two grains, give them an increasing dosage, sometimes up to ninety grains per day.

I would like to relate to you my studies on the effect of quinidine sulphate in auricular fibrillation in an experience of slightly more than one hundred cases. No selection of patients has been made regarding the underying pathology, age, sex, decompensation or previous digitalization. The drug has been prescribed for ambulatory patients as well as hospital patients, and private patients as well as those in dispensary or charity wards.

The method of dosage is quite simple. The patient is given quinidine sulphate in a tablet containing three grains. One tablet is taken every six hours during the twenty-four hour period. To follow accurately this regime the patient should awaken at night to take one dose. Forty per cent. of these patients have been converted to a regular sinus mechanism. Heretofore it was the concensus of opinion that, if a patient did not convert to a regular mechanism after taking quinidine for a period of a few days, a further trial would result in failure. This has not been our experience. Some cases have taken the drug as long as sixteen weeks before conversion occurred.

In cases of decompensation, digitalis was used in conjunction with quinidine. There has been considerable discussion as to the advisability of this procedure but practice has shown it to be desirable. Other necessities of cardiac treatment such as the use of opiates, diuretics, low ionic diets, and salyrgan were employed when necessary.

In the group of cases in which conversion to a normal mechanism has occurred, a maintenance dose of quinidine sulphate must be kept in force. Six to nine grains per day is usually sufficient. This dosage may be taken indefinitely without evidence of cinchonism.

In the cases in which auricular fibrillation persisted in spite of consistent efforts to convert it with quinidine, the patients were kept on small doses of digitalis of one-half to one grain per day and six to nine grains of quinidine sulphate per day to maintain their compensation. Several studies have been made in this group of patients of combining other drugs with the quinidine to effect a conversion but to date none have been found to be successful. In one group of patients intravenous injections of the drug were used, in doses varying from three to twelve grains, but these attempts were unsuccessful in effecting a conversion. This method cannot be recommended.

In Fig. 3 the effect of quinidine sulphate upon the fibrillating auricles is shown. These curves are made with the electrocardiograph from direct leads from the precordia. In the first lead the auricular activity is shown by numerous small unequal irregular waves with a frequency of about 500 per minute. The subsequent leads were taken during the succeeding days. They show the change in auricular activity. It appears that the number of irritable foci in the auricles are diminished by the sedative action of the quinidine, inasmuch as the contour of auricular waves become alike and their frequency is diminished. This is accomplished slowly from day to day till eventually the curve assumes an appearance similar to auricular flutter in which only a single ectopic auricular focus is active. It would then appear that the sino-auricular node re-assumes its normal role of pace-maker

and normal sinus rhythm occurs as the last irritable focus in the auricles is abolished. In those cases in which conversion does not occur the auricular activity is either not appreciably affected or it is slowed to a rate near 200 per minute with one or more auricular foci predominating, and the sino-auricular node fails to reassume its normal role of pace-maker.

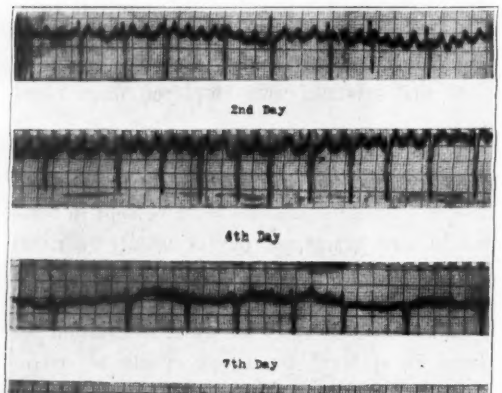

Fig. 3. Quinidine Grs. 3, 8 A. M., 2 P. M., 8 P. M., 2 A. M. daily, showing the effect of the drug upon the auricular activity. Chest leads were made on each successive day.

In summary, it may be said that auricular fibrillation is a state of abnormal cardiac physiology which decreases cardiac efficiency. Quinidine sulphate administered in doses of three grains, four times in twenty-four hours will, in forty per cent. of the cases, convert the auricular fibrillation to a normal sinus mechanism.

This method of continued low dosage is free of danger of quinidine intoxication and is applicable to all patients. Individuals with auricular fibrillation, who fail to convert to a regular mechanism, are best treated with a combination of digitalis and quinidine. The effect of quinidine is a sedative one.

Note:

The studies of the effect of quinidine sulphate upon auricular fibrillation in ambulatory patients were made in collaboration with Dr. Laurence E. Hines, Chicago. The formal report covering that series is soon to be printed in the Journal of Laboratory and Clinical Medicine.

PRESENT-DAY USES OF QUINIDINE.*

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Although many articles have been written on the uses of quinidine in cardiac therapy, there still exists much confusion and controversy as to its proper applications and dangers. First demonstrated as an effective agent in auricular fibrillation by Frey in 1918 after Wenckebach had previously used quinine in this irregularity, quinidine has become one of our greatest aids in the treatment of the arrhythmias.

Many of us fail to use this agent in cases in which it would be of great benefit because we are afraid of the occurrence of embolism or of toxic effects. Frequently we fail to obtain the desired result because of incorrect dosage or improper selection of cases.

The concensus of opinion among cardiologists seems to be that quinidine should be tried in all patients with auricular fibrillation of recent onset when there is no evidence of congestive failure, severe myocardial damage or high grade mitral stenosis. The majority of these can be restored to normal rhythm by the administration of sufficiently large doses over a short period of time, usually in 12 to 72 hours. Wolff and White[1] report 81.8 per cent. of those who had been fibrillating for less than one month restored. Although a few will soon revert to fibrillation, many maintain sinus rhythm for months or years, and thus may be spared a long period of invalidism with congestive failure.

Other patients with fibrillation of recent origin, who have been decompensated, may be benefited by a trial of quinidine after all signs of myocardial failure have cleared up with rest and digitalis. Although the likelihood of success is not as good in this group, a fair number may be restored to normal rhythm. It may also be tried in patients with long-standing fibrillation without congestive failure and without evidence of thyrotoxicosis, who complain of troublesome palpitation and dyspnea not relieved by digitalis.

In patients with auricular fibrillation due to thyrotoxicosis, who after operation do not have a return to sinus rhythm in 2 or 3 days, the administration of adequate doses of quinidine will restore a large majority to normal rhythm.

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Hurxthal[2] reports this treatment permanently successful in 88 per cent. of a series of 53 selected cases.

In the not uncommon condition of paroxysmal auricular fibrillation quinidine is also successful in most instances in stopping the individual attacks and will usually prevent further paroxysms if administered in daily doses of from 3 to 5 grains. Parkinson and Campbell[3] report their treatment with this drug highly successful in the large majority of these patients. They found digitalis therapy helpful in a few cases in which quinidine failed. A small number which includes cases of high grade mitral stenosis will do better if maintained in permanent fibrillation because of frequent and troublesome recurrences of paroxysms which quinidine fails to control. These authors found that in 15 per cent. of their series the etiology was due to thyrotoxicosis. Though the administration of the drug may be successful in this group, obviously treatment should be directed toward the overactive thyroid.

Another arrhythmia in which quinidine is very useful, in fact absolutely indicated, is paroxysmal ventricular tachycardia. Occurring most often as a complication of coronary artery disease, but also in other types of cardiac lesions, this disorder can be diagnosed with certainty only by means of an electrocardiogram. Since many of these patients are in a most serious condition while in a paroxysm and the prognosis is nearly always grave, quinidine should be started in large doses as soon as the diagnosis is clear.

Levine[4] and Kilgore[5] have recently suggested its prophylactic administration in small doses in all cases of coronary thrombosis to prevent the onset of ventricular tachycardia or fibrillation which, it is believed, often occurs as the terminal event in this condition. I have seen it used for 2 or 3 days preceding the intravenous injection of strophanthin to guard against the occurrence of ventricular fibrillation which is the usual cause of the sudden deaths due to this drug.

In paroxysmal tachycardia of auricular or nodal origin quinidine is not as useful as the usual means of vagal stimulation and is effective in only a very limited number of these patients. More often it is helpful in those who are troubled by frequent extrasystoles which it may prevent by the administration of from 3 to 10 grains daily. In auricular flutter it is usually wiser to give digitalis first. If fibrillation then follows, quinidine is applicable as previously described.

The method of administering the drug in attempting to restore normal rhythm in a patient with auricular fibrillation or ventricular tachycardia has been outlined by various writers. That of White[6] is probably as effective and safe as any. He advises giving first a single test dose of 3 grains after which if there are no signs of toxic effect, large doses may be commenced.

He gives six grains every 2 hours for 5 doses during the day, and repeats on as many subsequent days as may seem worth while, usually 5 to 10, until sinus rhythm is resumed, symptoms of poisoning appear, or until auricular flutter supervenes and persists for 2 or 3 days. Another method is to give 6 grains every 4 hours day and night.

Though larger doses than these are sometimes necessary, they are sufficient for the average case. In whatever manner the procedure is carried out close supervision preferably in a hospital with frequent electrocardiographic observations is important. It can, however, be done in the home with comparative safety if one is certain of the type of rhythm.

Toxic symptoms, consisting of tinnitus, diarrhea, nausea, vomiting, urticaria, marked drop in blood pressure, or very rapid and regular heart action necessitate discontinuing the drug. Only a small number of patients are unable to take quinidine because of these effects, the most common of which in my experience has been diarrhea.

Spiro and Newman[7] recently demonstrated evidence of the myocardial poisoning caused by quinidine by means of electrocardiograms in which there was marked prolongation of the QRS complex. After the effect of the drug had worn off, the QRS returned to its original form. In addition they advise examining with the fluoroscope for vigorous heart action, which they believe makes unlikely the occurrence of emboli.

The action of quinidine is directly on the heart muscle, producing decreased irritability and a prolongation of the refractory period.

The observations of Lewis[8] and Wenckebach and Winterberg[9] have shown that most of the

cases of fibrillation pass first through a period of flutter before sinus rhythm is resumed. This conclusion seems logical, since with the decrease in the conductivity and irritability of the auricular muscle one would expect that the rate of propagation and the number of the fibrillary contractions would be decreased resulting in a slower, more regtlar contraction of the auricles. When the refractory period becomes sufficiently prolonged, the impulses from the sinus node are able to break the circularly moving wave and establish normal rhythm.

Summary and Conclusion: The indications for the use, methods of administering, signs of toxicity and mode of action of quinidine are briefly reviewed. It is probable that this drug has not gained the widespread recognition which it merits among the profession.

Case 1. Mrs. H. B., aged 41 years, was admitted to the Presbyterian Hospital on Nov. 21, 1929, complaining of attacks of rapid and irregular heart action and shortness of breath for 4 years. Ten years previously she had had rheumatic fever. Examination showed the heart markedly enlarged both to the right and left, a faint presystolic and a systolic murmur at the apex with a totally irregular rhythm, a rate of 120, and moist rales over the bases of both lower lobes. The electrocardiogram on Nov. 18 had shown a 2:1 auricular flutter with a regular ventricular response at a rate of 136. Because of this digitalis was given.

On Nov. 26 a second electrocardiogram showed auricular fibrillation with a ventricular rate of 96. Quinidine sulphate was given, a total of 5 grams in 4 days in gradually increasing amounts. After sinus rhythm was restored, the patient was discharged feeling much betteer.

She made numerous visits to the dispensary afterward because of frequent attacks of fibrillation always terminated by taking quinidine but often ending spontaneously. Finally under regular quinidine administration of 3 grains 3 times daily she was comfortable most of the time for 9 months. After her next visit in April, 1931, she became decompensated, having been fibrillating for some weeks. The irregularity persisted from this date, no attempt being made to interrupt it because of difficulty in clearing up the decompensation.

This illustrates a case of paroxysmal fibrillation with rather high grade mitral stenosis. Although she did well for a few months on quinidine, she might have profited in the long run if we had attempted to keep her in permanent fibrillation with digitalis.

Case 2. Mrs. M. C., aged 48 years, came to the dispensary on Sept. 17, 1929, complaining of palpitation, dyspnea, and cough for 5 days. A previous attack one month before and lasting 2 days had occurred. She had had rheumatic fever at 13 with recurrences at 30 and forty-six. Examination showed marked enlargement of the heart to the left, an absolute irregularity with a rate of 187, no edema, no enlargement of the liver, and no rales in the chest. An electrocardiogram confirmed the diagnosis of auricular fibrillation.

After she had taken 4 grains of quinidine, remaining quiet at home, regular rhythm suddenly returned. The next electrocardiogram showed sinus rhythm with many auricular and ventricular extrasystoles. On auscultation a presystolic murmur was heard at the apex, a blowing diastolic murmur along the left sternal border and at the apex, and a systolic murmur in the aortic area.

She was directed to continue with a small dose of quinidine daily, but failing to do this regularly, had occasional attacks of fibrillation some of which terminated spontaneously. She continued the somewhat laborious occupation of making curtains in spite of repeated warnings to rest. During a period of 6 months while taking quinidine fairly regularly she was comfortable and had only occasional short attacks.

In December, 1930, after she had been working very hard during the preceding month, she was admitted to the hospital with extreme fatigue and a rapid auricular fibrillation. Examination showed an enlarged tender liver and moist rales in both lower lungs. She improved somewhat under rest and digitalis.

Three days after admission she developed a sharp pain in the right chest localizing posteriorly under the scapula; with marked dyspnea. The following day there was dullness and diminution in the breath sounds below the right scapula. She had a moderate elevation of temperature for 5 days, followed by 2 days during which she was very comfortable, free from dyspnea and with a pulse rate ranging from 68 to 85, though still irregular. She died very suddenly 10 days after admission.

Autopsy revealed chronic indurative mitral, aortic and tricuspid endocarditis, hypertrophy and dilatation of the left ventricle and auricle; acute thrombo-ulcerative (verrucous) mitral and aortic endocarditis, multiple scars of the myocardium; hemorrhagic infarct of the loweer lobe of the right lung; right hydrothorax; marked passive hyperemia of the liver; slight ascites. Histological examination disclosed Aschoff bodies in the myocardium.

This illustrates a case of paroxysmal auricular fibrillation due to chronic rheumatic heart disease. She would undoubtedly have done better under proper conditions of rest and medication taken regularly but a return of active infection of the endocardium and myocardium hastened the end.

Case 3. Mr. J. S., aged 55 years, came to the dispensary complaining of an irregular heart action and dyspnea for 5 years. Examination showed the heart slightly enlarged to the left, absolutely irregular with a rate of 100 and no murmurs. There was no edema, no enlargement of the liver, no rales in the lungs.

Twenty-two grams of quinidine sulphate were given in gradually increasing doses over a period of two weeks without affecting the cardiac rhythm.

In this type of patient, not decompensated and able to continue his occupation as a carpenter with very little discomfort, obviously, it is better to allow such a case to continue in permanent fibrillation rather than to load him up with a highly toxic drug from which there is small chance of benefit.

Case 4. Mr. C. H., a salesmanager, aged 46 years, first consulted Dr. Edwin R. Talbot of Joliet in June, 1930, complaining of a paroxysmal dyspnea, occasional attacks of rapid heart action, and slight pain in the right arm. Examination showed the thyroid gland slightly enlarged, the heart apparently of normal size without irregularity or murmurs, and the chest negative. The blood pressure was 118/84. The basal metabolic rate was —18. An x-ray of the chest showed a slightly enlarged heart of normal shape and position, deviation of the trachea to the left from the level of the fourth dorsal vertebra. An oblique view showed a density behind the uppeer part of the heart, but the aorta was not dilated. An electrocardiogram in November was normal except for slight right axis deviation.

He continued to carry on his occupation without interruption during the following 7 months, although he began to have more frequent and more prolonged attacks of tachycardia, at least one of which lasted an hour.

In July, 1931, while swimming he developed a very sudden paroxysm of rapid heart action, causing marked weakness and shortness of breath. I saw him about 12 hours after the onset in a state of collapse. He was lying in bed on one pillow breathing rather rapidly and with considerable difficulty. His face was slightly cyanotic and of a grayish cast. The radial pulse was imperceptible, the heart tones very distant with a rate of about two hundred. There were a few fine moist rales in the lung bases posteriorly. An electrocardiogram showed a tachycardia of left ventricular origin with a rate of 194.

Eighteen grains of quinidine sulphate in divided doses were given during the following 6 hours. He died rather abruptly 20 hours after the onset of the paroxysm.

This case illustrates an unusual occurrence of death during an attack of paroxysmal ventricular tachycardia in an individual without evidence of severe myocardial disease; as well as the fact that quinidine is not always successful in stopping this type of irregularity.

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DISCUSSION

Dr. James G. Carr, Chicago: I had expected to volunteer some discussion on this subject because I have been particularly interested in quinidine. While I appreciate very much the painstaking work Dr. Maher has done in this connection, I am compelled, because of the experience we have had with the drug, to issue a note of warning regarding its presumed harmlessness. Dr. Maher presented the results on 100 cases. In 1923, Dr. Spoeneman and I presented a study of sixty-one cases from the Cook County Hospital. Since that time I have kept notes on thirty-five cases. Of these ninety-six patients, six developed emboli. They developed emboli which could be recognized clinically. Two men died of gangrene following embolism of an artery in the leg. There were, in addition to the six cases just cited, five cases of sudden death during the course of quinidin therapy. Two of these died within a few days of the restoration of the normal mechanism. I mention these because I am satisfied that some, if not all, of these fatalities were due to the effect of the quinidin.

From Dr. Maher's remarks about the use of small doses of quinidin I gathered that he believes the incidence of embolism in the course of quinidin therapy may be greatly lessened if small doses of quinidin are employed. I believe this view is misleading. Within fairly wide limits, it is not the amount of quinidin which is taken, but the response of the individual to the drug. We found wide variations in the amount of quinidin which would restore normal rhythm or produce toxic effects. One of our patients died a few hours after six grains of quinidin had been taken in two doses. At the Cook County Hospital we usually obtained but one electrocardiogram a day upon the patients to whom quinidin was given, yet our observations led us to the same conclusion just expressed by Dr. Maher, that most of the patients proceeded from fibrillation to normal rhythm through an intermediate process of flutter. Flutter differs from fibrillation functionally in that the auricle in fibrillation is entirely ineffective. Although in practically continuous movement it is functionally useless, except as a reservoir; it has no share in promoting the circulation of the blood. If fibrillation is succeeded by auricular flutter the auricle again contracts as a unit even though the normal pacemaker has not regained control of auricular activity. Regular auricular activity is now recorded in the evenly spaced and equally prominent f waves of the electrocardiogram.

It is known that clots are more frequently found in the fibrillating auricle than in the auricle with normal mechanism. The reason for auricular clots is clear: the auricle has ceased to function and there is developed an opportunity for formation of clots through stagnation, especially in the auricular appendages. While fibrillation continues, pieces of these clots may be car-

ried into the circulation producing embolism in one or another organ. If the auricle again contracts as a unit as happens with the restoration of normal mechanism or with the onset of flutter, there is a likelihood that the functionally intact auricle may now dislodge portions of the intra-auricular clots which will be distributed as emboli. Serious results may ensue, even sudden death. I emphasize this because I feel it is important that any one who uses quinidin should realize that he is dealing with a drug of value which is not without the power to do harm. Quinidin, though a useful drug, is not free from possible dangerous effects.

A number of our electrocardiograms showed prolongation of the A-V conduction time after the restoration of the normal mechanism. Quinidin depresses cardiac irritability, prolongs conduction and lessens contractility. Probably these very qualities are those which are responsible for its usefulness in controlling cardiac irregularities yet these depressant manifestations may not be disregarded in the clinical use of the drug.

I have spoken dogmatically. Dr. Maher has done excellent work and has presented his conclusions clearly and effectively. Nevertheless, it is my conviction that it is unwise to give quinidin to a patient with an auricular fibrillation which has been present for some time. The "Old fibrillator," the patient who has had auricular fibrillation for months or years is exposed to a real hazard when an attempt is made to restore the normal mechanism. Quinidin has a definite place in the therapy of cardiac disease. It is valuable in paroxysmal tachycardia with fibrillation or regular rhythm. It is probably valuable, as Dr. Levine believes, and as has recently been recommended from some of the German clinics, for prophylactic use against ventricular tachycardia following coronary occlusion. It is often useful in the control of irregularities of the extra-systolic type. For my part I am loath to give quinidin to a patient with auricular fibrillation, known to have existed for three months or more. Within this length of time there has been opportunity for the formation of clots in the auricle and I believe that the attempt to restore normal mechanism under such conditions is unwise and fraught with danger. I freely admit that Dr. Maher's results have been very good but you or I may not have such good results with another series of cases.

I recall one unfortunate result of the successful use of quinidin. Auricular fibrillation persisted in a patient who had recovered from a thyroidectomy. Several days after operation, while the patient was convalescing satisfactorily, she was given quinidin in the hope of restoring normal mechanism. In this we were successful; regular rhythm appeared and continued for two days, when suddenly the patient died. If we persist in giving quinidin to individuals with auricular fibrillation of long standing, I believe we must expect to be called upon to explain, from time to time, such unfortunate accidents as the result of the therapy.

Dr. Warren Pearce, Quincy: So many statements have been made regarding the dosage of quinidine that it is not surprising that there has been some confusion. Anderson, reporting on the use of the drug after thyroidectomy, recommended a dose of 5 grains every four hours night and day for the first twenty-four hours; the same amount every three hours night and day for the next twenty-four hours and the same dose at more frequent intervals for the next twenty-four hours, stopping the drug when the desired effect was obtained. Other authors have recommended very small doses. I was much interested in hearing the expressions of Dr. Maher and Dr. Carr relative to doses used and also the great difference in their opinions concerning the dangers of the drug.

Acute infectious myocarditis is a timely subject and I am sure that if all cases of acute infections would be observed with great care, many of them would disclose symptoms indicative of myocardial involvement. Often these symptoms are mild and are overlooked. Faulkner, in a series of cases of diphtheria made daily electrocardiograms and found that in those cases developing evidence of myocarditis the clinical symptoms and abnormal electrocardiographis findings, in practically all cases, occurred simultaneously. In very few of his cases were any clinical evidences of myocarditis present without definite electrographic findings being also present.

The remarks on the use of digitalis in the treatment of heart disease not only emphasizes the place of first importance occupied by that drug in our armamentarium for attacking heart disease, but also brings to mind how truly great was Withering in his first description of the use and dangers of this drug.

It was gratifying to hear the conservative note sounded by Dr. Sutton relative to electrocardiography. Valuable as the electrocardiograph is, it must be borne in mind that it is only an adjunct in our study of heart disease and can, in no way, supplant physical findings and general symptomatology.

I would like to express my appreciation to Dr. Nadler, as Chairman, for presenting one of the most interesting symposiums that it has ever been my pleasure to hear in this section.

Dr. C. C. Maher, Chicago (in closing): I would like to take a moment to defend my observations. Dr. Carr and I have discussed this matter many times and I feel as emphatically on the subject as he does that it is not a dangerous drug. I should like to take exception to some of the things he has said. Concerning Lewis' work on the presence of thrombi in the auricle, the author says nothing about the length of time those thrombi have been present. Many cardiac patients do have thrombi in their auricles but they probably form a short time before death.

As to the toxicity of quinidine; in thirty-nine different instances I have administered quinidine sulphate *intravenously* up to 12 grains at one time. In other cases I have given 5 grains intravenously four times per day, without any serious results. The patients were up and walked around the ward. These intravenous studies show the mistaken concepts of its toxicity.

Just recently in the County Hospital we finished a series of case studies on normal hearts. We gave the drug by mouth in doses of 30 to 60 grains per 24 hours. Electrocardiograms were taken every day and never did we find prolongation of the P-R interval or change in the width of the QRS complex. There was obvious change in the T wave, however, which many drugs will produce. I am sure that in doses of 12 grains per 24 hours by mouth you will never find it has any toxic effect on the myocardium.

Of course, emboli can occur but they occur in any heart disease, but no more frequently in quinidine treated cases than otherwise as pointed out by Dr. Paul White.

I should like to emphasize that quinidine is getting the criticism that any new method receives. Many of you may remember when diphtheria antitoxin came out and the criticism that was leveled at that type of therapy. I feel very strongly that quinidine *in the dosage advocated* is perfectly safe.

Dr. Don C. Sutton, Chicago (in closing): I have a slight fear that Dr. Deneen may have changed some of the things I wanted to get over.

In regard to the case of angina with thyroid, that was a true case of angina. The thing I wanted to illustrate is that angina is a relative thing; it is relative to the amount of blood in the myocardium. Under extreme work and very rapid heart it may be otherwise so that we have a situation that is similar to actual occlusion of an artery.

I take it that when you spoke of not keeping patients in bed you were speaking of angina cases. I wanted to be sure that you did not mean cases of mild coronary thrombosis. I feel this type of patient should be kept in bed for a number of weeks.

NON-SURGICAL CHRONIC ABDOMINAL PAIN*

DON DEAL, M. D.

SPRINGFIELD

I am presenting the subject of "Non-Surgical Chronic Abdominal Pain" primarily for the purpose of emphasizing the importance of more pains-taking study of patients presenting chronic abdominal symptoms which might lead to the hasty and superficial diagnosis of such conditions as chronic appendix, cystic ovaries, gall bladder disease or adhesions. If we, as surgeons, would avoid surgical interference in what are purely medical conditions, I feel that we should never make a diagnosis of operable surgical pathology until we have thoroughly considered all other conditions which might produce similar symptoms. The diagnosis of chronic appendicitis, for example, should always be made with definite reserve. Chronic tenderness and pain alone, at or near McBurney's point, or in the gall bladder area or in the iliac fossae cannot be regarded as diagnostic.

The treatment of chronic abdominal pain merits the most careful and discriminating examination. In one popular sanitarium, catering to those who go for rest for nervous instability, it was found that more than 25 per cent. of patients have abdominal scars due to surgery instituted for the relief of symptoms. In many of these cases it may be presumed that surgery was not indicated and in some surgical interference may have accentuated the neurasthenic condition. On the other hand, in dealing with these patients, we must be exceedingly cautious in concluding that the symptoms are of purely neurotic origin even if the patient's statement presents anatomical incongruity or if there is an incompatible shifting or migratory pain. Frequently an organic foundation is causing symptoms which we are inclined to regard as characteristic of hysteria or neurosis.

We must bear in mind that in pulmonary tuberculosis practically all patients have abdominal symptoms at one time or another. A recent survey in a tuberculosis sanatorium showed laparotomy scars in 28 per cent. of their patients. Pulmonary tuberculosis, particularly with diaphragmatic pleurisy, not infrequently gives symptoms closely simulating appendicitis.

A not uncommon medical condition which is often overlooked is the so-called orthopedic appendix. Here tenderness and pain are found in the abdominal wall and may be readily recognized by simple tests which eliminate a diagnosis of intra-abdominal pathology.

Without prolonged discussion of confusing possibilities, I would suggest that the heart may masquerade as an abdominal condition and that the cardiac syndrome must be fully considered. A proximal constipation may cause chronic pain about McBurney's point. Tabes and conditions of the genito-urinary tract must be ruled out. Colitis, spastic colon or sensitive colon very frequently give symptoms which may be attributed to a surgical condition.

It is my desire to offer some suggestions which may help to clear up diagnoses in a large group of patients suffering from abdominal discomfort and those ordinarily diagnosed as asthenic, visceroptic or neurasthenic. The internist and the

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surgeon must approach these cases for cooperative study and in an unprejudiced state of mind if we are to attain the best interpretation of these abdominal symptoms. This is especially true with patients who are presumed to have a high degree of nervous instability.

I do not take the position that there are no cases of chronic appendicitis. However, I am impressed that such cases are rare and that the diagnosis should be made with some doubt and reservations. Unfortunately, many patients regard tenderness about McBurney's point as indicative of appendicitis and are insistent that surgery be done. Subsequent history indicates that many such cases are not relieved by surgery while others report temporary improvement which may, in many instances, be attributed to the post-operative rest and diet. Please do not misunderstand my position. These patients are in no sense immune to chronic surgical conditions. Many old gall bladders are to found; but our diagnosis of an operative condition can usually be quite definite and conclusive. Andrene states that but 5 per cent. of his patients with symptoms of chronic appendicitis proved to be those in whom the appendix was the only source of symptoms.

Obviously in my rather sweeping remarks regarding chronic appendicitis, I am not ignoring recurrent acute appendicitis which is a very definite condition and which I believe occurs quite frequently. We see many cases with a history of repeated attacks of appendicitis. I am not talking about recurrent attacks of appendicitis; but about the more or less chronic symptoms which are commonly interpreted as meaning chronic appendicitis—patients having a more or less prolonged abdominal tenderness with indigestion and attacks of pain that recur at intervals.

In case of doubt in these cases, we are not justified in exploratory operation as a routine measure since most of our mistakes are caused by medical conditions and not by surgical pathology which would be revealed by exploration. Barnett states that extensive exploration, with its increased mortality, so rarely reveals gastric or duodenal ulcer, gallstone or other unsuspected surgical lesion, that the extensive incision, with its definite risk of hernia, is not warranted as a routine procedure. Exploratory laparotomies are commonly undertaken for abdominal pain and tenderness which may cause the patient to seek relief. By proper examination, however, it is often possible to recognize the parietal location of symptoms so that futile and even harmful operation may be avoided. The idea that exploratory operations are harmless is not based on fact. The unquestioned mortality of from 1 to 2 per cent. and more or less frequency of post-operative hernias must cause exploratory operations to become distinctly less popular. The common belief with laymen that all chronic abdominal pains are due to surgical conditions has encouraged exploration; but carefully collected data show that about 80 per cent. of explored patients remain unrelieved. The platitude that long incisions will heal as rapidly as short incisions is often heard; but is not true if we consider other tissues than the skin. Payr holds that further exploration is not indicated after an erroneous diagnosis of chronic appendicitis, and I feel definitely that further exploration, after an acute appendix is found and removed, adds an unjustifiable risk.

As compared with the typical muscle splitting incision, the long exploratory incision is decidedly more hazardous, causes a longer hospitalization and increased mortality, adds post-operative pain and post-operative hernia. In comparing 100 cases with muscle splitting incision as against 100 cases of long exploratory incision, it was found that the latter entailed two years of added hospitalization and six years of disability with higher mortality, greater post-operative discomfort and increased frequency of hernia.

Pseudo-appendicitis is far more frequently caused by endocrine unbalance than has been ordinarily believed. A well-known writer has recently stated that the gastro-enterologist has occasion to worry about patients that have not been relieved by the usual series of operations on appendix, gallbladder and stomach and for ptosis, ovarian trouble and adhesions. He asks how we are to guide these unfortunates back onto the road to health. He holds that there is little to be expected from diet in these cases and he even suggests the blocking of paths of pain by injecting the nerves. I am satisfied that he has in mind the class of cases I am talking about which are often relieved by proper diagnosis and treatment from an endocrine standpoint.

In the class of cases commonly diagnosed as chronic appendicitis, it is necessary to obtain an

accurate and exhaustive history, to make a thorough examination and, especially, to ascertain the general endocrine history. This should include knowledge as to whether the mother gained an excessive amount of weight (over 25 pounds) during the intra-uterine life of the patient; whether or not the patient walked and talked at the usual age; when menstruation began, its regularity and quantity and history of dyspmenorrhea. It should also include a comparison of the upper and lower measurements, the span as compared with the height and a general inspection of the figure. Inspection of the skin and nails may give suggestive information. In even this casual examination a clue to more specific diagnosis is frequently had, by the utilization of our more recent knowledge. I am satisfied that, in the past, the importance of endocrine unbalance has been frequently overlooked and this failure in interpretation has added largely to the prosperity of the various medical cults.

In reviewing the general medical and surgical literature one is impressed by the dearth of material on the relationship of the endocrine to abdominal symptoms. Engelbach's works, however, have added greatly to our knowledge. During the past three years, serious consideration has been given to the subject by numerous students. It appears that the unbalanced endocrine secretion causes the nervous system to become more sensitive, bringing in its train a multitude of abdominal symptoms. Allen, Doisy and Stockard have added greatly to our general knowledge of the subject and Sexton and Hutton have guided us in the therapeutic application of that knowledge.

The interesting types which chiefly concern us consist of two principal classes, the primary hypogonad or eunuchoid and the secondary gonad or pituitary groups. The primary hypogonad or eunuchoid group is characterized by tall, slender stature, nervous instability, general constitutional weakness, frequent gastro-intestinal symptoms of varying degrees and, very frequently, the occurrence of abdominal pain. It is when symptoms referable to the gastro-intestinal tract with associated abdominal pain occur that diagnosis becomes clouded. The gastro-intestinal symptoms in this class of patients include distension after eating, epigastric fulness, lower quadrant distress often to the extent of sharp pain, often at the time of menstruation; but not infrequently during the intermenstrual period. Pain in these cases is attributed to follicle tension in unduly sensitive persons, coincident with ovulation.

In women the menstrual history will usually reveal one or several symptoms of disturbed ovarian function, such as delayed onset of menstruation, scanty flow, prolonged interval or painful menses. Diagnostic studies in these cases will give little aid. Spasticity of the colon is a common finding as is also general visceroptosis. Undoubtedly gastro-intestinal function is altered in the ptosis type; but ptosis itself cannot be held accountable for the symptomatology. There is a general upset of the entire endocrine system with derangement of the sympathetic and parasympathetic nervous systems and only the correction of the primary disorder will bring relief. It is rather generally believed that the pain accompanying menstruation is due to an improper balance between the gonadactivating hormone of the anterior pituitary and the ovarian hormone (Theelin).

The pituitary or secondary hypogonad patients, while possessing an entirely different physical make-up, often present a bizarre gastro-intestinal syndrome very similar to that of primary hypogonadism. Incidentally, at this point I want to remind you of the well established fact that failure of the anterior pituitary results in gonadal failure. When this failure is present before adolescence, sexual infantilism occurs. If it occurs after adolescence and when sexual development has been completed, there is disturbed sexual function. Further you will recall that hypopituitarism may be of the obese or of the non-obese type.

Primary pituitary insufficiency is most frequently complicated by secondary thyroid deficiency. When this occurs, obesity is present. In this type, the patient is short or about normal stature, depending upon the activity of the growth hormone of the anterior pituitary. These patients are of the sthenic type, and, like the eunuchoid group, often have well-defined abdominal pain most often referred to the gall-bladder and appendix regions. In women, the menstrual history is like that in the eunuchoid group.

Operative procedure in either group, in the absence of definite organic pathology, gives no

relief; but rather tends to aggravate the symptoms. It must be borne in mind, however, that true organic disease can and does occur in the eunuchoid and pituitary type of patients and the diagnosis of an endocrine disorder should only be settled upon after a careful diagnostic survey.

Frequently this class of patients will have pain about McBurney's point, accompanied by nausea and vomiting and, at times, an increase in the white blood count. To illustrate the eunuchoid class of patients, I desire to give the following abbreviated history:

Mrs. M., married, aged 29 years; never pregnant. No history of acute illness; but has never been robust or strong. Chief complaint was recurrent attacks of abdominal pain at or near McBurney's point, belching, constipation, nervousness, loss of appetite, loss of weight amounting to 30 pounds since she was 18 years of age. Frigid type. She began menstruating at 15 and has been somewhat irregular, generally of the five and six week type. Menses scanty, running two to four days. Examination: Weight 134 pounds; height 67 inches; span 69½ inches; upper measurement 32 inches; lower 35 inches; blood pressure 100/60. There was some resistence and tenderness over McBurney's point. Vaginal examination was negative except adnexa sensitive. White blood count 9,600; hemoglobin 85 per cent; red count 3,800,000. Urine negative. Diagnosis: Eunuchoidism. A diagnosis of chronic appendicitis had been made before the patient came to me for observation.

Border line cases may be more difficult; but this clinical picture was frankly that of appendicitis as generally accepted without considering endocrine possibilities.

Comments: The history of frigidity and sterility in this case is at once suggestive and this is accentuated by the history of disturbed menstrual function. While the pain over McBurney's point and other abdominal symptoms have their significance, the patient as an individual must be studied. Her tall stature and eunuchoid measurements, increased lower measurements (top of symphysis to soles) over upper (top of symphysis to vertex) and increased span over height, strengthen the suspicion of functional disorder. Delay in closure of the epiphyses of the long bones in ovarian failure, together with over-production of the growth hormone of the anterior pituitary account for the excessive long bone growth. In this type of cases general visceroptosis is found. In the past, ptosis was considered primary; but, in the light of our present knowledge, it is regarded as secondary. The oestrin quantitative determination in this case would be of great diagnostic value and it is hoped that the day is not far off when this diagnostic aid will be available to all physicians.

It is a generally accepted fact that ovulation occurs from the twelfth to the sixteenth day following the beginning of the last menstruation. Sclerosis of the ovarian tunic may in part be responsible for the persistent pains in this class. At any rate it may be responsible for some of the mid-menstrual pain which is ordinarily not associated in the mind of the clinician with dysmenorrhea pain.

This patient was put on ovarian follicular hormone (Theelin) and has been practically free from all symptoms for more than a year.

The second general class to be considered is the pituitaro-thyroid type. These patients usually have a distribution of fat over the girdle. A typical short case history is the following:

Mrs. C., aged 27 years. Has large busts, deposits of trochanteric fat and rolls of fat in the abdominal wall. Mestruation began at 11. Has always been irregular, at times missing two or three months. She is nervous and has difficulty in sleeping. Three years ago she developed a rather acute attack of pain resembling gall stone colic. This was accompanied by chill followed by some elevation of temperature and slight jaundice with vomiting. Since that time, she has had three similar attacks. The past history was otherwise negative so far as acute conditions were concerned. Weight 192 pounds; height 67½ inches; span 65 inches; upper measurements 34½ inches; lower 33 inches; chest circumference 46 inches; waist, 39 inches. The features are small; a somewhat full thyroid; blood pressure 150/100, pulse normal. Gall bladder study negative.

Discussion: Although the gall bladder study was negative, the diagnosis of chronic cholecystitis can hardly be ignored in the history. It is of interest to note that gall bladder disease is very likely to occur in patients of the pituitary type. That this patient is of the pituitary type is shown by the measurements. The upper measurement is greater than the lower and the total height is greater than the span. There is distribution of fat over the girdle. Of further interest is the early onset of menstruation, at age 11, with subsequent irregularity due to secondary hypogonadism. Such a mixed menstrual history may be expected in multiglandular disturbance. It has been stated that these patients are of the sthenic type and the blood pressure of 150/100 in this case is in keeping with the general make-up. B—M. Test—18.

Thyroid deficiency was secondary to the pri-

mary pituitary insufficiency. This patient was treated with the pituitary sex hormone by hypodermic and with desiccated thyroid orally and placed on an anti-obesity diet. Within three weeks she had begun to lose weight and her nervous stability was strengthened and, very soon, the menstrual cycle was restored. She has had no recurrence of abdominal pain.

Conclusions: 1. Exploratory incisions clear up but 5 per cent. of surgical diagnoses. 2. Exploratory incisions add to risk and disability. 3. At sight a suspicion of endocrinopathy may be suspected. 4. History and examination establish diagnosis. 5. All suspicious cases should be thoroughly studied to rule out surgical pathology. 6. Proper endocrine therapy will relieve a large per cent. of properly diagnosed cases. 7. Unnecessary surgery is prevented in many cases.

DISCUSSION

Dr. James H. Hutton, Chicago: I would like to discuss Dr. Deal's paper, taking the last of it first. He says that when they have a tall thin patient they make an endocrine study first. In my opinion one should first rule out the non-endocrine diseases.

Regarding the eunuchoid case: The increased length of the lower extremities over the upper can occur only in case the ovarian insufficiency begins before puberty. If it begins after the epiphyseal lines close, this disproportion in growth cannot occur. The gonads have an inhibiting influence over the growth of long bones. A lack of these hormones causes the epiphyses to remain open longer than normal. In such cases the long bones grow rapidly and to a later age than normal so that the lower measurements exceed the upper.

Dr. Deal mentioned the basal metabolic rate as being low in the combined disorders of pituitary and thyroid. I should like to make this observation. It was made to me some years ago by the late Dr. Engelbach and it has been confirmed in my own experience. In patients having a combination of pituitary and thyroid deficiency the basal metabolic rate gives us very little information as to the status of thyroid function. The explanation for this has never been made. Many patients presenting evidence of a combination of these two disorders in whom the basal metabolic rate may be normal or even slightly elevated can tolerate liberal doses of thyroid. Such cases many times exhibit a tachycardia which is reduced to normal following the administration of thyroid. The only way we can determine the dosage of thyroid in these cases is by trial and error, beginning with small doses and increasing to tolerance. In my opinion a patient who can take three grains of thyroid a day is severely in need of thyroid medication. The idea of beginning with five grains is quite out of order. I think we should begin with one-quarter grain and increase one-quarter every fifth day until the signs show that the patient is getting two much, at which time we can reduce the dose by one-fifth and continue at that level.

The patient with upper measurements longer than the lower is apt to be a victim of primary pituitary deficiency. Because of the lack of growth hormone the long bones do not grow with the usual rapidity or to the usual length. There is relatively little difference in the flat bones and consequently they continue at approximately their normal rate and we have an upper measurement that exceeds the lower. It does not follow that we have a deficiency of sex hormone at the same time. You are all familiar with the man who is below the average height but whose sex functions is above normal. In other cases there may be a lack one or both sex hormones without any disturbance of the growth hormone.

There is no doubt that the pituitary exhibits all of the actions and influences attributed to it by experimental workers, but there is serious doubt that each of these actions is due to a separate hormone. We are relatively certain that the anterior lobe produces both a growth and a sex hormone and of the latter there may be two. Of the various other hormones we are much less certain.

Dr. Deal mentioned the importance of the menstrual history. I would like to emphasize what he said about that. Engelbach said some years ago that patients who had pituitary disturbances were apt to experience one menstrual period that was quite profuse and then weeks and months of amenorrhea. The history should show the onset of the periods, the regularity and the degree, time, location and character of the pain. If a patient comes to you and says she has headache beginning seven to ten days before the period and lasting up to or through it, you should think of a pituitary disturbance. That is the characteristic pituitary headache. I cannot make a diagnosis of pituitary headache but these facts are significant. There is another fact that points to ovarian insufficiency and that is a painful period alternating with one relatively painless.

Dr. Deal outlined the condition of the skin and its appendages, the hair and the teeth. These can be taken in at a glance. Obesity if present indicates pituitary disturbance when the fat is distributed about the shoulders and pelvic girdles. So it is not difficult to acquire some evidence as to whether the patient has some endocrine disturbance. The age of walking, talking and teething should be noted. Another thing of significance is whether the mother was able to nurse the baby. Women having defective pituitaries are not able to nurse their babies for any length of time, two or three months at the most.

Cases of ovarian deficiency as differentiated from pituitary deficiency are very difficult indeed. It is difficult to tell whether it is a primary ovarian deficiency or one secondary to pituitary involvement. Women who have ovarian deficiency beginning early in life are tall and thin. The skin is not clear. There are a great many cases of acne that are on the basis of ovarian insufficiencies. The patient with ovarian deficiency has more gastro-intestinal upsets than the pitu-

itary deficient patient. These attacks may, as Dr. Deal said, simulate appendicitis or gallbladder disease. Pituitary deficiency involving particularly the posterior lobe gives rise to a great deal of abdominal pain. We are not nearly so certain as we were ten years ago and as we would like to be that disorders of the posterior lobe are more frequent than those of the anterior lobe. Undoubtedly the pituitary has a lot to do with the metabolism of fat. Many times patients become fat and the fat is laid on in the pituitary type, but we are not at all certain that the posterior lobe is responsible. Experimental workers seem quite sure that the anterior lobe has as much or more to do with fat metabolism than the posterior lobe.

Along the line of experimental observations, a worker in the Argentine transplanted the anterior lobe under the skin of hypophysectomized dogs and they became quite severely diabetic. That has been confirmed in the United States by Dr. Barnes in Carlson's laboratory. He has a dog that has neither pancreas nor pituitary and is not diabetic. On the other hand, Cushing within the last fifteen months has reported a large number of cases of what he calls pituitary basophilism. Several of these patients had diabetes. One patient was very low and death was feared. When they administered considerable doses of x-ray to the pituitary the diabetes was improved. You will recall that Joslin has noted that diabetic children are often quite tall and raised the question whether the growth hormone of the anterior lobe has not been more active than it should be, with the result that the youngsters developed diabetes. We feel sure that the pituitary in some cases of diabetes is quite as important as the pancreas.

I am particularly glad to hear Dr. Deal's paper and am particularly glad to hear such a paper in the Section on Surgery. I am sure it indicates progress.

PRIVATE SANATORIA AND REST HOMES FOR THE CARE OF MENTAL PATIENTS IN ILLINOIS

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CHICAGO

In the spring of 1930 a personal investigation was made of all private institutions for the care of mental patients in Illinois. The results of this study were published in the ILLINOIS MEDICAL JOURNAL, issue of May, 1931. During the spring of 1933 a second and similar investigation was made, and it is now possible, therefore, to make a comparative report of conditions disclosed by the two periods of study.

The 1930 investigation included 11 sanatoria and 15 rest homes; that of 1933 included 11 sanatoria and 20 rest homes. Ten of the eleven sanatoria in the two investigations are identical; among the rest homes, however, only eight of the fifteen active in 1930 were found to exist in 1933, and during the three-year interim twelve others came into existence. The comparative instability of the rest homes is obvious.

Unfortunately, the distinctions between sanatoria and rest homes are not generally understood. These distinctions were drawn in the report of the 1930 investigation, but for the sake of clarity they should be noted briefly again. 1. Sanatoria offer housing facilities for (a) social intercourse, (b) recreational activities, and (c) treatment; rest homes are primarily residences. 2. Sanatoria have equipment for (a) medical diagnosis, (b) protection against accident, (c) emergency relief measures, and (d) other therapeutic procedures; rest homes are furnished for comfortable living. 3. Sanatoria are operated by medically trained personnel —physicians, nurses and technicians fitted by study and experience to prescribe or apply diagnostic and therapeutic measures; rest homes are run by personnel presumably prepared to give custodial care. 4. Sanatoria make the details of their work matters of record, subject to investigation; rest homes are relatively free from this necessity. Much confusion may be cleared away and misunderstanding avoided by keeping these distinctions in mind.

The physical plants and the equipment of the sanatoria today are so nearly identical with those of three years ago that comparison would serve no good purpose; descriptive detail may be found in the previous report. The same statement is true regarding the similarity of the plants and furnishings of rest homes. The economic depression has made improvements in either class of institutions quite exceptional. The only sanatorium in which major improvements have been carried out since the 1930 investigation was taken over and subsequently operated by its creditors. The closing of eight rest homes is quite significant. In such times of economic distress, the failure to make expensive improvements cannot be justly criticized; the mere ability to carry on is itself commendable.

The personnel in the sanatoria has undergone but little alteration. The medical direction has changed in one instance and been reduced in another. Scandal has so associated itself with one of the institutions listed as a sanatorium

in 1930 that its existence was ignored in the compiling of the 1933 list; one rest home so listed in 1930 has made such improvement in facilities and so complete a change in personnel that it is now listed as a sanatorium. While the closing of eight rest homes and the opening of twelve necessarily presupposes great changes in personnel, these changes have made no particular improvement in personnel except in the one instance above noted.

An accompanying table gives data regarding nursing service. It will be noted that, in the eleven sanatoria, the nursing and attendant staffs have been reduced in number from 225 to 165, or 27 per cent., while the patients have decreased in number from 525 to 438, or 17 per cent. Special nurses are included in the data, thus emphasizing unduly the disparity between the two percentages. It will be noted further that, in the rest homes, the reduction of nurses and attendants has amounted to but 2 per cent., while the decrease in patient population has amounted to 13 per cent. The value of these percentages is destroyed by the fact that the rest homes have increased in number; a correction for this factor changes the 2 per cent. to 30

PRIVATE SANATORIA FOR MENTAL PATIENTS IN ILLINOIS

Name and Address	Capacity	Patients	Nurses	Minimum Rates
Bellevue Place Sanitarium, Batavia	36	30	13	30
Chicago Sanitarium, 2828 Prairie Ave., Chicago	105	42	14	25
Kenilworth Sanitarium, Kenilworth	30	15	19	65
Mercyville Sanitarium, Aurora	175	150	25	10
Michell Farm, Peoria	25	20	6	46
Norbury Sanatorium, 1631 Mound Avenue, Jacksonville	100	50	46	30
Parkway Sanitarium, 2622 Prairie Ave., Chicago	50	24	10	25
Peoria Sanitarium, 106 N. Glen Oak Ave., Peoria	26	8	4	46
Pinel Sanitarium, 741 Diversey Pkwy., Chicago	65	18	7	25
Resthaven Sanitarium, 600 Villa Street, Elgin	70	62	11	20
Wilgus Sanitarium, N. Second St. Road, Rockford	35	19	10	35
Totals	717	438	165	357
Averages	65	40	15	32.50

PRIVATE REST HOMES FOR MENTAL PATIENTS IN ILLINOIS

Name and Address	Capacity	Patients	Nurses	Minimum Rates
Anderson Rest Home, 2107 Leland Ave., Chicago	5	2	1	15
Belvidere Resthaven, 1004 Grover Street, Belvidere	4	1	2	16
Crosby Rest Home, 212 Tryon Street, Woodstock	10	7	2	15
Ferrin Home, 3811 West 59th St., Chicago	8	6	1	7
Florence Rest Home, 546 E. Grant Highway, Marengo	10	6	1	12.50
Hart Sanatorium, 3400 Prairie Avenue, Chicago	20	6	3	20
Heffron Rest Home, 10347 Longwood Drive, Chicago	6	3	3	25
Helen Gould Rest Home, 10361 S. Wood Street, Chicago	6	2	2	12.50
Howe Home, 410 E. Jefferson Ave., Wheaton	15	8	2	15
Hueckstedt Home, 128 W. Hurlbut Street, Belvidere	8	5	1	10
Isaacson Rest Home, 5337 Cottage Grove Ave., Chicago	4	0	2	10
Lake Park Sanitarium, 3256 Lake Park Ave., Chicago	20	15	4	20
Lake View Rest Home, 10324 Longwood Drive, Chicago	12	7	5	15
Roberts Rest Home, 1414 Hinman Avenue, Evanston	20	0	1	12
Seven Oaks Home, Princeville	14	4	1	25
Shore View Manor, 2719 East 75th Street, Chicago	14	10	3	15
Therien Nursing Home, 6017 Kenwood Ave., Chicago	40	23	6	10
Vincennes Sanitarium, 4639 Drexel Blvd., Chicago	20	18	5	20
Virginia Hall, 2001 Orrington Ave., Evanston	20	15	4	20
Wall Farm, Batavia	7	4	1	12.50
Totals	263	142	51	307.50
Averages	13	7	2.5	15.37

COMPARISON OF DATA FOR 1930 AND 1933

	Total Capacities		Total Patients		Nurses and Attendants		Average Minimum Rates	
	1930	1933	163	142	52	51	24.00	15.37
Sanatoria	714	717	528	438	225	165	42.00	32.50
Rest Homes	219	263	1930	1933	1930	1933	1930	1933

per cent.; in many rest homes all employes are counted as nurses or attendants. In the evaluation of nursing service the medical service must also be considered; sanatoria have physicians in charge who, when there are but few patients, may give these patients a greatly increased amount of personal attention and so justify a corresponding reduction of nursing service; rest homes have physicians who call at intervals, but when patients are few these intervals may be lengthened, thus increasing the need of nursing or attendant service.

The table above referred to also gives data regarding minimum weekly rates. It will be noted that, while in 1930 the average minimum rate at a sanatorium was $42.00, in 1933 it was $32.50, a reduction of $9.50 or approximately 23 per cent. Also, while in 1930 a rest home offered to receive patients for a minimum rate of $24.00 per week, in 1933 this minimum offer is $15.37, a reduction of $8.63 or 36 per cent. Neither totals nor averages of actual receipts from patients can be given here, but it is certain that average fees have declined more than the minimum rates above quoted would indicate, and since the number of patients has also decreased the total receipts from these patients have doubtless fallen to an amazingly low figure.

The list of institutions given below is known to be complete only in regard to the sanatoria; there are probably a few small rest homes not included. The list is published, not as an indication of the worthiness of the institutions listed, but solely as a means of making the data available to physicians, social agencies, and any other persons in need of such information.

OPHTHALMOSCOPIC FINDINGS IN CONDITIONS OF HYPERTENSION*

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CHICAGO

Hypertension is reflected in the ophthalmoscope, in either subtle or obvious fashion, be the hypertension benign or malignant, associated with arteriosclerosis, or sequential to increased intracranial pressure. The earliest subjective symptoms are not infrequently visual. The patient comes complaining of black spots before the eyes, of viewing objects through a haze, of sudden attacks of obscuration, or he may see in the peripheral field sparkling points that abruptly appear and disappear.

In the past decade it has been demonstrated that the various conditions in which hypertension occurs have typical and definite ophthalmoscopic characteristics. Friedenwald[1] distinguishes four primary groups: (a) benign hypertension, (b) arteriosclerosis without hypertension, (c) arteriosclerosis with hypertension, and (d) arteriolar sclerosis with malignant hypertension.

In *benign hypertension* the fundus picture may appear normal. However a direct determination of increased blood-pressure in the central retinal artery can be secured with Bailliart's dynamometer.[2] This is a simple spring-tension instrument with which measurable pressure can be exerted on the eyeball, while the observer concentrates on the arteries at the disc. Pressure is commenced gently, and as soon as an induced arterial pulse appears, the reading is noted. Knowing the initial intraocular tension, by means of the graphs of Bailliart,[3, 4] the data is readily translated into the equivalent of millimeters mercury. The diastolic pressure of the central retinal artery is normally 35 mm. Hg.,—somewhat less than half that of the brachial artery, and this ratio maintains itself in hypertensive states, unless the cerebral circulation is particularly affected. In *increased intracranial pressure,* the retinal diastolic reading is significantly and disproportionately high, a phenomenon that may long precede the disc changes. To what degree the retinal diastolic pressure may be thus elevated is strikingly illustrated in a case reported by Berens.[5] The patient was a woman, aged 36, with bilateral papilledema of three diopters of nine months duration. The brachial diastolic pressure was 70; the retinal diastolic pressure, instead of being just about half this figure, reached 60 mm. In general, a diastolic pressure in the central retinal artery greater by 10 mm. than half the brachial diastolic pressure is indicative of increased pressure in the cerebral arteries, the result of increased intracranial pressure. The retinal blood-pressure tends to be greater on the side of the tumor.[6]

In *arteriosclerosis without hypertension,* the main arterial branches are characteristically full and tortuous. Caliber variations, perivascular

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sheathing and arterio-venous constrictions are present, and occasionally also some hemorrhages and white spots. The light streak is brilliant because of the increased reflecting power of the hyalinized arterial wall. With fine caliber variations, irregularity and beading of the reflex result.

In the retina, where an artery and a vein cross, the vessels have a common adventitia, a condition that occurs nowhere else in the body. Because of this, a thickening of the arterial wall impinges on the lumen of the vein, and frequently involves the latter in an extending sclerosis. Slight arterio-venous constrictions occur normally, but the more advanced degrees are due to arteriosclerosis or hypertension. When the vein is seen narrowed beyond the point of crossing, phlebosclerosis has occurred. Since the superior temporal vein is the branch most frequently crossed by a retinal artery, it is consequently this tributary that is most frequently affected by venous thrombosis.

In *arteriosclerosis with hypertension,* the outstanding feature is a generalized arterial attenuation; the smaller vessels become invisible. Along with this change, the arteries straighten and branch at more acute angles. The explanation of this lies in the fact that the sclerotic process particularly affects the retrobulbar portion of the central retinal artery. With secondary longitudinal shrinkage consequently, the retinal arterial tree is sucked into the disc.

At the arterio-venous crossings the changes observable in simple arteriosclerosis become more marked. Four points are to be noted: 1. Constriction of the crossing vein. 2. Reduced translucency of the arterial walls. Whereas normally the underlying vein can be followed directly to the arterial stream, in arteriosclerosis it is not seen for a definite distance on either side. 3. The white lines, which in advanced cases produce the pipe-stem sheathing, in early cases are best seen against the background of the vein. 4. The vein changes its direction on meeting the artery to make a right-angled crossing. The artery, in changing its course in advanced arteriosclerosis, drags on the attached vein and produces this picture.

In *retinal arteriolar sclerosis,* which accompanies and often is the earliest manifestation of malignant hypertension, the terminal arterioles are those first affected. Concentrating on the finest vessels best seen in the macular area, the ophthalmologist observes localized variations in caliber, "corkscrew" tortuosities, and increased "silver-wire" brightness of the arteriolar walls. The veins undergo localized constrictions at the crossings of both small and large arterial branches. The larger arteries for a time remain full and tortuous, branch at about right angles, and reflect a widened "copper-wire" light streak. Hemorrhages and white spots tend to be concentrated around the macula, instead of being widely scattered as in the arteriosclerotic fundus. The frequent occurrence of angiospasm has led Volhard,[7] Wagener,[8] and Agatson[9] to consider spasm the initial factor, and they consequently term this condition "angiospastic retinitis." But may it not be that hypertension induces a protective increase in the arterial musculature, and that it is this which predisposes to spasm? However it be, hypertension definitely precedes arteriolar sclerosis, whereas senile sclerosis is primary and precedes hypertension.

Fig. 1. Bailliart's Dynamometer.

Arteriosclerosis of the retinal arteries tends to terminate in arteriosclerotic retinitis, whereas the sequel of arteriolar sclerosis is the so-called "albuminuric retinitis."

In *arteriosclerotic retinitis,* vascular changes predominate. Ischemic degeneration produces an aggregation of small sharp spots, each of not much larger diameter than a retinal vein. Edema of either papilla or retina never occurs. Small or large hemorrhage are frequent, and may be superficial or deep. Distention of the veins, when present, suggests cardiac insufficiency. With the lapse of time, new hemorrhages and white spots come, while some disappear. Chorioidal sclerosis with pigmentary changes is often associated.

The better term for albuminuric retinitis is that proposed by Fishberg and Oppenheimer[10]—*malignant hypertensive neuroretinitis.* The typi-

cal picture includes soft "cotton-wool" exudates; retinal, papillar, and peripapillar edema; hyperemic disc; and numerous hemorrhages. The stellate figure so often seen about the macula most probably results from pre-existing edema. The arterial columns are narrowed, and the veins distended; especially so when the papilledema is marked. Keith, Wagener, and Kernohan[11] differentiate the ophthalmoscopic findings in essential malignant hypertension from the similar picture which may supervene in *chronic glomerulonephritis.* In the latter, the retinal edema is more extensive, peripapillar "snow-bank" exudates are frequent, the disc and retina are anemic, and sclerosis of the retinal arterioles is usually absent. Marked papilledema, reaching 5-6 diopters, may occur in this condition, and is then significant of an associated cerebral edema, incident to circulatory disturbances in the brain.

Clinically, malignant hypertensive neuroretinitis is generally seen in individuals under 50, while arteriosclerotic retinitis is most common after that age. In retinal arteriosclerosis without hypertension there is relatively little renal involvement. In patients with arteriosclerotic retinitis, death occurs most frequently from cerebrovascular accidents, cardiac failure, or coronary closure. The prognosis for life is much better, and the rate of impairment of renal function much less than in the cases of malignant hypertensive neuroretinitis.

Malignant hypertension can appear at any stage of essential hypertension. A patient with essential hypertension may suffer for twenty years before a change for the worse occurs. The advent of neuroretinitis is associated with a rapidly progressing nephritis, and indicates either that renal insufficiency is present or threatens inevitably. Death occurs generally from uremia. At autopsy necrosis of the renal arterioles has been demonstrated. Urinary findings in the course of the disease indicate that the retinal lesions precede those of the kidneys.

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DISCUSSION

Dr. M. L. Folk, Chicago: The intra-ocular tension must be taken previous to starting Bailliart's test. That should be brought out. I might say that this instrument is often difficult for a beginner to use, as it is hard to observe the pulsation of the artery because the cornea becomes somewhat steamy, and, as Dr. Suker said, the beginner usually overestimates the pressure of intra-ocular vessels. So that should be done carefully.

In the benign type of hypertension, Dr. Lebensohn says it presents no ophthalmoscopic changes. I think Guist of Vienna brought out that there are changes in the fundus, that is, the corkscrew appearance in the small veins in the macula. While the large vessels appear normal there is a change in the venules of the macula.

Dr. Harry Woodruff, Joliet: It may be that Dr. Lebensohn touched on the appearance in the disc of the right-angle turn of the superior vessel at the edge of the cupping. I would like to have him say something also about the cupping of the optic disc in glaucoma without tension. In a notable article by Dr. Arnold Knapp, he gave an explanation of that condition, quoting other authorities, in which he makes the statement that there is present in those cases changes, revealed by x-ray, of a sclerosis of the contiguous cerebral vessels.

Dr. James E. Lebensohn, Chicago (closing): I purposely avoided giving details of the method of use of the Bailliart dynamometer in order not to make that the principal feature of the paper. The whole matter is gone into exhaustively in my translation of Bailliart's book out since 1928. It is true, the intraocular tension must be measured before one proceeds to take the dynamometric reading. It is also important, as Dr. Suker brought out, to take the reading in each eye. If there is a question of cerebral neoplasm and one finds a high diastolic pressure in one eye, it suggests that the tumor is on the side of the higher finding. Dr. Suker objects to the explanation given for the sucking in of the arterioles of the retina. This is the conclusion of Friedenwald and is based by him on observations wherein he has found that the branching of the vessels has changed from year to year. The point of branching becomes nearer to the disc or may be sucked entirely into the disc. The question of excavation of the disc possibly is adequately explained by Bailliart who holds that one has to consider the relation between tension and blood pressure of the retinal ar-

teries. When the arteriolar pressure is relatively low, as occurs in angiosclerosis, the patient may get an anemia of the disc fibers even with normal intra-ocular tension. On the other hand, with high blood pressure, the patients very often do not develop acute symptoms but pass into the chronic state of glaucoma because they do not develop acute vascular changes. Dr. Folk speaks of Guist's finding changes in the macular vessels in benign hypertension. I believe that when such changes are seen an eventual malignant hypertension can be predicted.

THE SURGICAL TREATMENT OF GASTRIC AND DUODENAL ULCER*

HARRY M. RICHTER, M. D.
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I wish to present to you the subject of gastric surgery from the angle of radical surgery as a routine procedure. There are many conditions in medicine of which we can say that we are familiar with the local lesion but are not familiar with the cause of the lesion. Thyroid disease presents a good example. Until recently we were totally ignorant of the nature of goiter. We looked upon it as a disease entity. Today we know it is the end result of an iodine deficiency. We are still in the same state regarding thyrotoxicosis that we were twenty years ago regarding the nature or underlying cause of goiter. We know now a great deal about thyrotoxicosis. We know the changes taking place in the gland are related to the clinical symptoms. However, we know nothing of the underlying nature of the disease which gives us the clinical picture we call thyrotoxicosis.

I am indebted to Gregory Connell for a quotation from J. A. Ryle to the effect that we should be interested in peptic ulcer, the disease, rather than peptic ulcer, the lesion.

We are quite familiar with the local lesion in peptic ulcer, with its pathology, its local changes, secondary changes and the accidents that go with it, and we are familiar with the clinical picture. Moreover, clinical medicine has made progress in the control of the lesion and the symptoms resulting from the lesion. All the studies of clinical and experimental medicine have led us nowhere as to the real cause. We know nothing of ulcer the disease. Knowing nothing of ulcer the disease we yet have made very great progress in treating the disease. Treatment by the internist has resulted in the control of the patient's clinical picture in a very large proportion of the cases.

The surgical treatment which I wish to present to you is to be regarded as limited in its application to those cases that are resistent to adequate medical care. These include cases that are not relieved by medical care, or tend to recur; that are associated with complications of what ought to be termed a surgical character; particularly the cicatricial deformities that interfere with function; most deeply penetrating ulcers. Acute perforation is always, massive hemorrhage not always, a surgical indication. A coincident condition may be considered a contraindication, such as a major cardiac, renal or other condition. Extremes of age may at times be considered a bar. The coexistent condition may add unduly to the risk—or the life expectancy may not be great enough to justify any major surgery.

I wish to remind you that the surgical treatment of such ulcers carried out by the usual methods of limited surgical attack is directed toward the same purpose the internist carries out very effectively. Both internists and surgeons who attack the ulcer as a local lesion aim to do certain things, such as lower the acidity, enable the stomach to empty more easily, deflect the current of gastric contents, etc.

The gastro-enterostomies used for so many years have done very good work in these cases. The excision of ulcers with plastics on the pylorus has accomplished much. I wish to remind you, however, that in those cases that are not benefitted by gastro-enterostomy the patient is left in a condition that is more difficult to handle than before his operation. I think the internist's criticism has been that they are harder feeding problems than before operation.

Ulcers may be single or multiple. Scars in the mucosa may indicate that earlier ulcers have healed, and suggest that the patient may have had a series of ulcers during the course of his illness. Ulcers have healed—or been cured—only to be succeeded by a new ulcer or crop of ulcers. This holds true after treatment by the internist and probably to a material extent after conservative surgical treatment, all of which suggests to me that the underlying ulcer disease is capable of reproducing the local lesion whether it has been removed by the internist or by the

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surgeon, so long as the anatomic ulcer area remains.

It is quite impossible to evaluate the literature on the subject of ultimate results of gastric surgery because the reports of results are so variable. Excellent surgeons and clinicians have reported whole series of gastro-enterostomies and excisions of ulcers with results that are almost perfect, and yet if we study the literature carefully we will find equally excellent men who, studying their cases, find too many patients returning with recurrent ulcer.

Before passing from the subject of local operative work, I wish to remind you that ulcer of the lesser curvature differs from that of the duodenum in that it tends to be more extensive, more inflammatory and ultimately to form cicatricial changes that are more damaging than in the duodenum. In ulcer of the lesser curvature we often have no way of knowing from the clinical picture, from the roentgenogram or on the examining table whether we are dealing with an ulcer or carcinoma. If that is true it must be illogical to excise ulcer of the lesser curvature. Gross excision leaves a handicapped stomach. If one cannot determine whether the lesion is ulcer or carcinoma, it is illogical to destroy the ulcer *in situ* without an opportunity to study it. Local operative work in ulcer of the lesser curvature is, I think, particularly illogical. Many years ago, in my early days in surgery, the cavity of the gall-bladder was commonly regarded as the seat of disease of the gall-bladder. We opened the gall-bladder and put in a drain and that is all we did. I remember when one of my professors sutured the gall-gladder to the peritoneum and waited seventy-two hours and then opened it and took out the stones. It is realized today that when we just drain the gall-bladder we leave behind the organ which is the seat of the disease. I am sure that today surgeons are agreed that removal of the gall-bladder is the logical procedure.

May I point out to you that the segment of the gastro-intestinal tract including the lesser curvature and the first portion of the duodenum constitutes an organ analogous to the gall-bladder. It is an organ, and whatever may be the underlying cause of ulcer, it manifests itself by a lesion in that structure. My suggestion is to regard that structure as the organ to be removed as you would remove a gall-bladder. It is a solid organ. Its surface is covered by mucous membrane. It is an organ that can be sacrificed without any more damage to the body than sacrifice of the gall-bladder, and its removal removes the opportunity or ability of the ulcer to reform.

Therefore, I present this operation not as a means of correcting over-acidity or removing infection or of doing any of those things that the internist accomplishes. I suggest it on a far more important basis, that of removing the organ in which the disease can occur. This operation does all of the other things; it enables the stomach to empty more easily; it lowers acidity. Current literature of today is paralleling very closely that of thirty years ago regarding gall-bladder surgery. If you read the literature of the English speaking countries, you see altogether too much limited surgical work advised. We seem to be very fearful of the more radical operation. We are afraid of it because it is a major operation, an operation which is on a par with and yet not more serious than, surgery of the colon or common duct.

The removal of the stomach in this way has had its development along two lines. The Billroth I operation in which the end of the stomach was united with the end of the duodenum fell into disfavor for some time but has been taken up again lately. One of the greatest surgeons in the field of gastric surgery, Haberer, prefers the Billroth I operation. The second operation in which a gastro-enterostomy is done between the closed end of the stomach and the jejunum has been modified in various ways by different surgeons. I have the feeling that the modified method of Polya and Finsterer is the ideal one today. It has the logic I mentioned. It carries with it a reasonable mortality, higher than that of gastro-enterostomy or excision of the ulcer, pyloroplasty, etc. I believe it is less than that of the minor operations if we include the mortality from recurrences, from secondary accidents, from more extensive surgery later. With that we have an excellent function and we have few complications. A famous surgeon has said that the man who removes the whole stomach for a little ulcer would not operate on him. To remove two-thirds of the stomach for a small ulcer may seem illogical to you. That thought was answered very nicely by one of our Chicago men, Dr. Alfred Strauss, who called attention to

the fact that if you have a crushed foot you do not painfully save the heel and part of the tarsus but you sacrifice the heel and lower third of the leg to get a good functioning stump. That is what we propose to do. Only one-half of the stomach is left, but it functions.

THE IMPORTANCE OF IMMUNIZATION IN THE CONTROL OF ACUTE CONTAGIOUS DISEASE.*

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The past century has witnessed some profound changes in relation to various phases of our development but few have shown a more striking transformation than the measures provided for the safeguarding of health. Notwithstanding the remarkable improvements that have been developed since the year 1800, that period was a comparatively recent one in the history of acute contagious disease. Records[1] indicate that several outstanding members of this group of human afflictions had their origin at a date involved in antiquity. The disease which Galen described as "the pesta magna" (and of which Marcus Aurelius died in the year A. D. 180) is believed by many to have been smallpox. There is evidence that smallpox has existed in India as far back as records go. The period of definite clinical observation of diphtheria seems to have opened with Aretaeus of Cappadocia at about the beginning of the second century. The first authentic account of typhoid fever was written in England about 300 years ago. The origin of scarlet fever is obscure, but convincing descriptions of the disease were written in the sixteenth century at Palermo. Many years later (1675) more accurate information was published by Sydenham of London.

In the past a distinction has rightly been made between infectious and contagious diseases. Typhoid and rabies are infectious rather than contagious but they are important members of the group that is preventable by specific prophylaxis. From the standpoint of immunization the entire group involved can be included under the single term of acute transmissible (communicable) disease.

The reporting of cases, in connection with disease control, has been a comparatively recent development. Fairly satisfactory case registration in Illinois dates from 1907 in Chicago and from about 1917 down state. For practical purposes the case reports were fairly complete subsequent to those years. Mortality registration has been required for many years. Figures for the early years[2] were not accurate but they may be used together with official census records to give a fair estimate of the prevailing morbidity. Statistics of morbidity and mortality over a period of years are necessary in considering the value of active immunization in the control of disease. There are additional factors, other than immunization, that have contributed to the improvements in disease control. These will include the periodic physical examination of children, more effective quarantine methods and improved measures of sanitation. Army records are of value especially in regard to smallpox and typhoid fever, owing to the tremendous military losses that have been sustained, in the past, as a result of these diseases. Military authorities have been prompt in accepting specific preventive measures, and making them compulsory as soon as their status of efficiency and dependability would warrant such action.

The nature of immunity implies that in an individual granted to be susceptible, immunization to a disease can be accomplished only by contact with the toxin of that disease. This contact may occur by receiving a large dose of infection and suffering an attack of the disease; by repeated smaller doses of infection providing sub-clinical immunity; and by receiving the purified toxin of the disease in regulated doses of known quantity. The first method is dangerous, the second is too slow, and the third makes it possible to become immune to ordinary exposures, safely and in a minimum period of time.

It has long been recognized that the acute transmissible diseases cannot be considered collectively, to an advantage, but that each major member of the group constitutes an individual problem. They are, therefore, dealt with accordingly.

Smallpox: Jenner's[1] discovery in 1796 was especially remarkable, not only because of its great practical value, but also because the man, himself, had no conception of the direct cause

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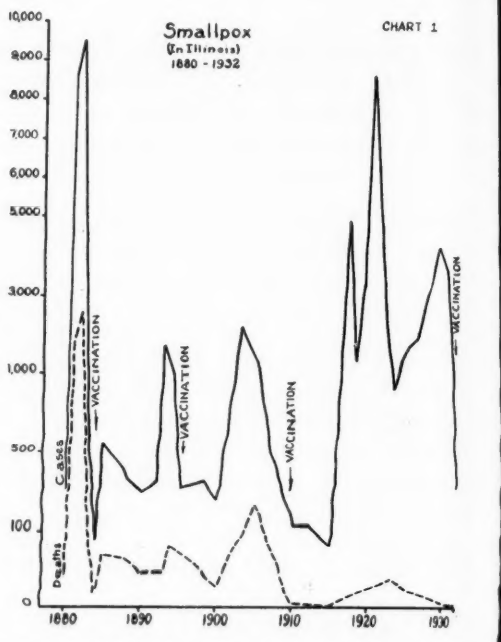
of the disease other than its possible relation to cowpox. Up to that time smallpox had been a world-wide plague. When it was introduced into Mexico[3] in 1520 by the Spaniards, 3,500,000 people died within a few years. According to an article published in 1901 in *American Medicine*, almost 70 per cent. of the population of Greenland died of smallpox in 1737. It caused forty-five thousand deaths annually in the United Kingdoms. The yearly number of smallpox deaths in France was approximately 150,000, and in Russia over a million in a single year.[4] Subsequent to the year 1800, vaccination gradually became recognized and later became compulsory in many European countries. During the Franco-Prussian war[5] in 1870-71 the German Army reported 4,835 cases of smallpox with 276 deaths. In the French army, which was much smaller, there were 125,000 cases with 23,470 deaths. In Germany at that time vaccination was optional but widely practiced. In France it was neglected. During the World War the French army reported approximately 5 cases with no deaths. *They had learned well the lessons of 1870-71.* Since 1874 a rigid vaccination law has been in force in Germany.[5] The average death rate from smallpox per million people before this law was 309. After the law was passed it dropped to 15; and during the past ten years it has dropped to about half of that figure. In the German army there has been but one death from smallpox reported since 1874. In our Civil War armies there were 12,236 cases of smallpox[5] with 4,717 deaths (38.5 per cent.). Among the cases that had *never* been vaccinated the mortality was 40 per cent. Among those who *had* been vaccinated at some time the mortality was about 2 per cent. A remarkable contrast is offered when we compare the United States and England with Continental Europe.[6] In 1930 there were 46,712 cases of smallpox reported in the United States, 11,839 in England and Wales, and 268 in Continental Europe (exclusive of Spain, Portugal, Greece and Russia). Of these cases, 217 were reported from France. The average annual smallpox figure for the United States is almost double that for entire Europe when the latter has about four times the population that we have. The State of Illinois had 4,249 cases of smallpox in 1929 and 3,782 cases in 1930, when Germany with almost nine times our population, reported one case in 1929, and two in the following year.

The following figure illustrates graphically the prevalence of smallpox in this State for the past fifty years.

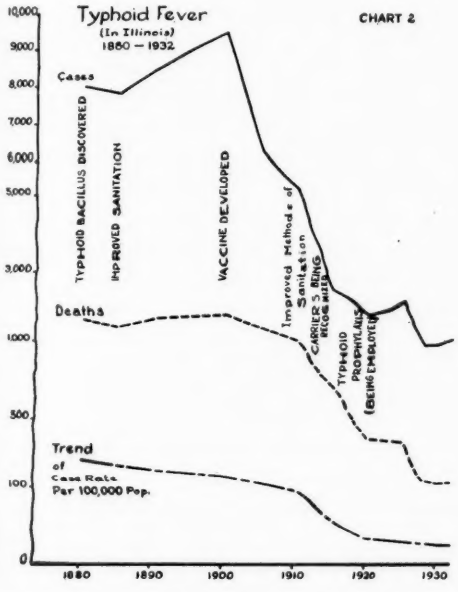


It is noted that smallpox as usual goes to extremes and shows a hectic prevalence curve. The explanation is that severe outbreaks are usually followed by wholesale vaccination and the community involved may be relatively free for a number of years during which vaccination is again neglected. The percentage of susceptible population gradually rises until a point of community susceptibility is reached that will permit another outbreak. A rapidly increasing population during the early years was accompanied by corresponding increases in the number of cases of contagious disease. The case rate, however, has over the period of years, been on the decline.

The reason for the wide difference between our present smallpox figures and those abroad is that in most countries of central and eastern Europe vaccination is compulsory. Regardless of the type of people or government, and regardless of the advisability of compulsory vaccination, the fact remains that vaccination will prevent smallpox, and that expresses its true importance.

Typhoid Fever: The early records of typhoid

fever are admittedly inaccurate and in this particular locality scarcely any were kept prior to the time of the Civil War. Those that are available, however, are sufficient to indicate the high case and death rates that prevailed in the early days. It was not until 1880 that the typhoid bacillus was discovered but since that time rapid strides have been made throughout the world in typhoid control. Our own commonwealth has shared abundantly in this improvement.[2] The following figure illustrates the typhoid situation in Illinois since the year of 1880.



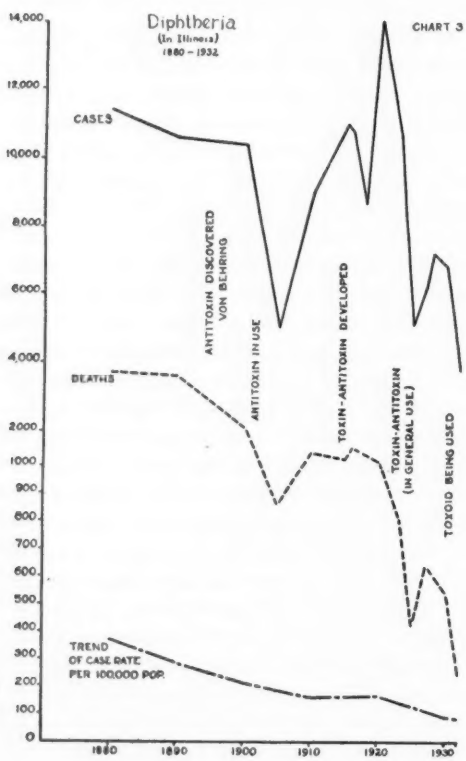
It is noted that at the time of Eberth's discovery in 1880 the general prevalence curve for typhoid was on the up-grade and it was not until twenty years later that it began to show a genuine and permanent drop in the number of cases. During that twenty years many improvements were made in the field of sanitation, and work was done that later resulted in the discovery of anti-typhoid vaccine. In 1896 Pfeiffer and Kolle demonstrated that immunity could be produced by the subcutaneous inoculation of dead typhoid bacilli, and a few years later Wright and his colleagues exploited the prophylactic use of anti-typhoid vaccine and brought it into clinical application.[7] Typhoid prophylaxis did not come into general use until several years later (about 1908). At a slightly later date more effective sanitary improvements were started and the importance of typhoid carrier control came to be recognized. Together these things have produced a great change in the typhoid situation.

For the most accurate early typhoid fever statistics we must turn again to the United States Army. In the Spanish-American War (1898) one out of every 71 enlisted men died of typhoid, whereas in the recent World War there was only one death from the disease in every 25,000 enlisted men. Among 11,000 men stationed at Jacksonville, Florida, during the Spanish-American War typhoid fever developed in 4,422. Typhoid inoculation was made compulsory in the Army in 1911. During maneuvers at San Antonio, Texas, that year the forces consisted of almost 13,000 men, all inoculated. There was one mild case in a man who had just started his treatment. During the same period there were 49 cases in uninoculated citizens of San Antonio, with 19 deaths.[8]

As a result of work done during recent years by Besredka and others, relating to local immunity against infectious disease, oral vaccination against typhoid fever has received considerable attention. The vaccine is taken orally about thirty minutes following the ingestion of approximately one gram of desiccated ox-bile (in capsules). Three doses are used at intervals of 24 hours. The bile is used to provide a favorable reaction in the stomach and intestine for the passage of the typhoid antigen. Studies[9] have indicated that agglutinins developed in several weeks following treatment in many of the subjects treated. This method of typhoid immunization was popular one year ago but we are not hearing much about it at the present time. We believe a course of three weekly subcutaneous injections is preferable, the first representing the equivalent of 500,000,000 disintegrated bacilli, and each of the last two doses doubling that amount. If reactions occur at all they are so slight as to be of no consequence. To our knowledge the only cases of typhoid reported in supposedly immunized persons were those in which the vaccine was either outdated or had been improperly stored. Late investigations[10] indicate the advantage of newly isolated typhoid cultures over old stocks in the preparation of typhoid vaccines. A distinction is made between strains in smooth and rough colonies on plate cultures. The basic factor, however, involves the

morphological differences in the non-motile, and motile varieties of typhoid organisms. The newer smooth strains are believed to be more virulent or, at least, possess greater powers for the production of immunity. The inference would be, therefore, that vaccines made from smooth strains would be preferable to the present available preparations all of which, I believe, are made from rough strains of the organisms. There are possibilities that typhoid vaccines of higher antigenic value may be available in the future. The results of anti-typhoid inoculation have been eminently satisfactory.

Diphtheria: In regard to the control of diphtheria more has been accomplished during the last ten years than at any previous similar period in the history of the disease. This is shown graphically in the following figure representing the diphtheria prevalence in Illinois as far back as records are available.



The downward trend of the diphtheria death rate in the United States during the past ten years is well represented by mortality returns published by the Metropolitan Life Insurance Company[11] for a large section of the population numbering about 19 million insured individuals in the United States and Canada, of all ages, from one year upwards, among whom the fall in the diphtheria death rate has been much greater in proportion than the decline in the general death rate from all causes:

Diphtheria death rate per 100,000 population:

Yr.	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	*1930
	22.1	23.8	18.	15.5	12.7	10.2	9.5	10.2	9.5	8.5	q

General death-rate per 100,000 population:

Yr.	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	*1930
	989	870	883	897	848	846	885	842	869	874	873

It is the consensus of opinion that if 40 to 50 per cent. of the children under 10 years of age in a given community are actively immunized against diphtheria, an epidemic of the disease will not be likely to occur in that community. The practicability of this belief is dependent, of course, on the fairly even distribution throughout the community of those immunized; and further requires that the immunized child population include at least 35 per cent. of those in the first 5 years of life.[12] Experience has demonstrated the soundness of this principle in numerous instances so far as *epidemics* are concerned, but sporadic cases continue to appear with an occasional death. There is no valid excuse for the slackening of enthusiasm when a 35 per cent. or even 60 per cent. immunity has been attained in the community. Such a figure may be too low especially for organisms of greater than average virulence. With treatment so effective and so readily available it seems reasonable that at least 75 per cent. of the children under ten years of age should be given protection, and in some communities the figure is even higher. Two years ago about 85 per cent. of the children under 15 years of age in Calhoun county were immunized with toxin-antitoxin, the results being determined with a subsequent Schick test. So far as we know there has not been a single case of diphtheria reported from the county since that time.

In 1923 Ramon of the Pasteur Institute first applied toxoid to the immunization of human beings. Toxoid is prepared by adding commercial formalin to toxin, and subjecting the toxin to a temperature of about 40°C. until all toxicity is lost. The process usually requires from three to six weeks. The potency of toxoid is expressed in antigenic units, and a good prepara-

*Incomplete for 1930.

tion should contain at least 8 antigenic units per cubic centimeter. The material distributed by the Health Department has a high antigenic value.

The advantages of toxoid over toxin-antitoxin have been quite well demonstrated during the past two or three years. It is from 20 to 30 per cent. more effective, even in only two doses; it contains no serum to sensitize children to subsequent biological therapy; it contains no free toxin and is more stable.

All children of pre-school age (6 months to 6 years), excepting those showing decided allergic tendencies, should be given protection by immunization against diphtheria. The great susceptibility of the pre-school child justifies the elimination of the preliminary Schick test; and this age group may, to an advantage, be extended to include all children under ten years of age.

Opinion is divided at the present time as to the advisability of preliminary Schick tests in the older children. This factor would depend somewhat on the community involved, as it has been shown that rural children show a higher susceptibility to diphtheria than those in the city where the opportunity is favorable for acquiring active immunity from repeated exposure to mild infections. In children over 10 or 12 years of age it is perhaps best to use the Schick test and later treat the positive reactors. Many children of this age are immune. Older children and adults show a greater tendency to reaction to toxoid than do young children, and in treating them it seems advisable, instead of giving two 1 cc. doses three weeks apart, to give at least three small doses at shorter intervals.

Toxoid has been available through the Health Department for the past two years. During that time thousands of children have been treated. Morgan county, with considerably over 8,000 children under 15 years of age, and a total population of 34,240 has had only 4 cases of diphtheria in the past year with no deaths. Two cases were children in the same family and the other two were in adults over 40 years of age. During the school year of 1931-32 about 53 per cent. of all children under 15 years of age were immunized with three doses of toxoid. Of 1,463 pre-school children living in the county, outside of Jacksonville, 43 per cent. were immunized. Of the entire group of children treated with three doses of toxoid 99.2 per cent. were later found to be immune.

During 1932, L. W. Sauer[12] reported the immunization of well over 100 infants and small children (mostly under three years of age). Two 1.5 cc doses of toxoid were used four weeks apart. Six months later Schick tests were done using Schick material from at least two different well recognized biological houses. The entire group proved to be 100 per cent. Schick negative. Ford and DeWitt counties both obtained slightly less than 99 per cent. immunity with two doses. The history of diphtheria in institutions for children since the advent of specific immunization is well enough known that it needs no comment.

Over three years ago Glenny[13] discovered that the addition of alum to toxoid increased its power to develop antitoxin when injected into horses. Later investigation by Park[14] led to the use of the alum toxoid in the treatment of children. Wells, Graham and Havens[15] in 1932, succeeded in immunizing over 90 per cent. of a group of children with a single injection of precipitated toxoid. Later Graham[16] and others further demonstrated the efficacy of a single 1 cc. dose containing a maximum of 10 antigenic units. A group of 613 children of unknown Schick reaction was later shown to be 96.57 per cent. immune following a single 1 cc. injection of precipitated toxoid containing not more than 10 antigenic units. Precipitation of toxoid by alum produces a highly purified finished product that can be concentrated to almost any extent. The Chicago Board of Health has employed alum toxoid in the treatment of large numbers of children and report favorable results. Further reports on the use of this material will no doubt make their appearance in the literature.

In spite of the excellent results that have been obtained in the past with toxin-antitoxin, the advantages of toxoid are obvious. Many authorities are thinking entirely in terms of toxoid at the present time and it seems likely that the use of toxin-antitoxin will eventually be discontinued.

Scarlet Fever: The present conception of scarlet fever differs considerably from that of a few years ago. Immunity has not been found to develop following infections with the hemolytic streptococcus and that fact has stood strongly in the way of general acceptance of

this organism as the specific causative agent for scarlet fever. It has also retarded the progress of specific preventive measures now in the process of development. We now regard scarlet fever as a local infection in the mucous membrane of the naso-pharynx in which a soluble toxin is produced, which when absorbed into the system of the patient produces the characteristic rash and the other symptoms.

The scarlet fever prevalence in Illinois has not shown the favorable downward trend that has been manifested by some of the other diseases during the past decade. Since the year 1930, however, there has been some improvement as the following tabulation will show:

Year	Population	Cases	Deaths	Morbidity rate (per 100,000)	Mortality rate (per 100,000)	Fatality rates (per cent reported Cases
1923...	6,790,524	9,481	225	139.6	3.31	2.5
1924...	6,877,787	11,702	206	170.1	2.99	1.8
1925...	7,092,000	15,688	268	221.2	3.77	1.7
1926...	7,203,000	14,243	233	197.7	3.23	1.6
1927...	7,314,000	11,787	172	140.0	2.31	1.4
1928...	7,396,000	12,355	160	167.1	2.16	1.2
1929...	7,478,000	17,298	304	231.3	4.06	1.8
1930...	7,658,590	17,352	306	226.6	3.99	1.1
1931...	7,718,000	16,775	360	216.0	4.66	2.1
1932...	7,768,000	14,876	363	191.5	3.88	1.8

The public is gradually becoming more familiar with the occasional unpleasant consequences of scarlet fever. Better cooperation generally in the control of the disease has undoubtedly contributed to the improvement shown during the past two years. Reports indicate, however, that specific scarlet fever prophylaxis has also been of value, despite the fact that further investigation and a more extended trial seem necessary in placing the preventive treatment on a satisfactory basis.

Early scarlet fever preparations often produced reactions that were almost as bad as the disease itself, with the result that many physicians have continued to be skeptical with regard to the improved products that have been developed more recently. In 1923, Doctors George F. and Gladys H. Dick developed a reliable skin test for scarlet fever susceptibility, an antitoxin for therapeutic use, and a method of active immunization against the disease. The Scarlet Fever Committee has authorized several biological houses to manufacture and place these products on the market. They have been used rather extensively in the larger cities and in institutions. The literature contains reports of capable observers on the favorable results of scarlet fever prophylaxis. In 1929, the Dicks[17] reported no cases of scarlet fever among 1,191 susceptible nurses and internes who had been immunized before they began work in hospitals for patients with contagious diseases. Kiefer[18] in 1928 reported on the disappearance of scarlet fever from institutions in which there had been active immunization of inmates showing a positive Dick test. In the Illinois Soldiers and Sailors Children's School at Normal[19] several hundred positive Dick reactors were immunized during the past few years. Other work was done at St. Mary's Training School at Des Plaines. The result has been that scarlet fever disappeared from these institutions.

According to the Dick method of immunization this treatment consists of five subcutaneous injections of Dick toxin at weekly intervals in gradually increasing amounts in the following approximate doses: 500; 2,000; 8,000; 25,000; and 80,000 skin test doses. Most prominent among the symptoms reported following the injections have been elevation of temperature and vomiting. The important thing is that scarlet fever is not occurring to any extent in groups of children that have been treated. The immunity lasts for at least one year and in the great majority for a much longer period.

The controversy at the present time does not question so much the immunizing value of the toxin, but rather involves other factors that determine the extent of its use. Viewing the matter purely from the standpoint of parents of children to be treated, we must admit that immunization of children in an institution is a different matter than such work done privately. The injections of scarlet fever toxin are not free from unpleasant reactions. Such reactions are not dangerous, but they often cause parents to refuse further treatment and make physicians reluctant to use the toxin. Parents also object to the prolonged course of treatment. A few extra doses make a difference to both children and parents. There is a need for a potent scarlet fever streptococcus product that will be less toxic than the raw toxin and still effective against scarlet fever in a smaller number of doses than is required at the present time.

During recent years various studies have been made relating to the use of formalinized scarlet fever toxin as an immunizing agent. McMahon[20]

in 1930 reported that 72 per cent. of 176 children between the ages of 4 and 16 years were rendered negative to the Dick test following three doses of 0.5 cc., 1.0 cc., and 1.5 cc., respectively, of scarlet fever streptococcus "toxoid." The interval between doses was 21 and 25 days, respectively, and the retest was made 76 days following the last dose.

Toyoda[21] in 1930 worked with formalinized toxin and reported encouraging results.

Veldee,[22] of the U. S. Public Health Service, made detailed study of the question in 1930. Treatments were administered to 115 Dick positive children and young adults divided into four groups according to age. In most of these, three injections were given varying the interval and dose in the different groups. The average total amount given each individual was slightly over 70,000 skin test doses. One patient about 20 years of age had a moderate reaction with headache, nausea, and slight temperature following the first dose only. Another had marked general reactions after each dose. Aside from these, the reactions consisted mainly of soreness and some swelling at the site of injection. Some complained of moderate headache. A great many had no reaction of any consequence at all. The interval before retesting varied from 12 to 43 days. All gave negative Dick tests with exception of two young adults and one child about 8 years of age. The possibilities for scarlet fever toxoid are encouraging.

The further progress of scarlet fever immunization demands that it be given a more extended clinical trial by physicians generally. It is reasonable to predict that a few more years will find it as convenient and effective as diphtheria prophylaxis is at the present time.

Whooping Cough: In connection with the specific prophylaxis of whooping cough there is wide difference of opinion.[23] The identity of the causative organism is quite generally accepted, but the prophylactic value of vaccines prepared from Hemophilus pertussis is a much debated question. Statistics are not plentiful. During the past four years L. W. Sauer[24] has conducted studies in immunization against whooping cough, using vaccines prepared from recently isolated strongly hemolytic strains of Hemophilus pertussis grown on Bordet medium made with human blood. He has given over 1600 injections to about 300 children averaging under 3 years of age, and reports no severe local or systemic reactions. One cubic centimeter of the vaccine contains approximately 10 billion bacilli. The entire series was divided into three groups, all receiving the same total amount of vaccine; between 7 and 8 cc. (70 to 80 billion bacilli); but some were given larger doses than others, being careful that injections were never repeated in the same area.

In discussing the results of the treatment Sauer makes a distinction between "certain" and "probable" exposures. Under the former he lists eight injected children of five families and six non-immune controls. All six controls "contracted unquestionable whooping cough from two and one-half months to three years after their brothers and sisters had been injected." With one possible exception none of the injected children developed any sign or symptom of the disease although they were exposed daily to patients throughout the various stages of the disease.

The results of this work are encouraging and indicate that the procedure holds promise as a preventive measure. It will be of interest to keep in touch with further developments. Additional work is clearly indicated.

Tuberculosis: In view of the evidence that active immunity to tuberculosis may exist, various experiments have been conducted on healthy animals, directed toward the establishment of resistance by the injection of products prepared from modified tubercle bacilli.

A few years ago Calmette[25] and his associates developed a vaccine from a bovine type of tubercle bacillus that had been cultivated for long periods in the presence of bile (B. C. G.). After extended preliminary tests of the material on cattle, he undertook the immunization of children by oral administration of the B. C. G. vaccine. Encouraged by the results, he extended the treatment to several thousand children living in contact with tuberculous subjects, and reported favorably. Other workers have administered the B. C. G. vaccine by subcutaneous injection. Reports do not warrant definite conclusions but the subject is of interest at the present time.

Rabies: Finally, it seems to me that a discussion of this subject would be incomplete without at least making mention of the high place held by anti-rabic vaccine in the prevention of disease. While we do not usually think of rabies in connection with acute contagious disease it is

clearly transmissible, and especially during the past two years it has been quite prominent among the diseases preventable by immunization. Reflection on the hundreds of exposures to known sources of rabies infection, and the subsequent protection of those infected will bring us to recognize the tremendous importance of anti-rabic vaccine. In the few human cases of rabies that have developed during or following treatment it has usually been possible to discover that the treatment was begun too late, the material was not potent, or there was some fault in the technique.

Viewing the entire subject of immunization in its present status it is noted that few of the effective biological agents that we now use have been wholly the inspiration of any one man. (Smallpox vaccine is perhaps the only one.) They represent rather the conclusion of work begun by medical scientists of the nineteenth century. The value and importance of immunization against smallpox, diphtheria and typhoid is established, so far as ordinary exposure to infection is concerned. There is a limit to resistance or immunity, and it is perhaps in no case absolute. There is reason in the belief that a patient who has had diphtheria and continues to be exposed should be able to resist the infection in any amount, but on the contrary it is possible for such a patient to acquire an overwhelming infection that may prove fatal. The effect of immunization is not permanent in a strict sense. It simply tides us over the danger period until we are able to develop our own protective mechanism. It probably cannot accomplish more than that, and usually no more is necessary.

CONCLUSIONS

1. Effective measures for control of transmissible disease have developed in a comparatively recent period.

2. The consideration of immunization must involve statistics over a period of years; also other pertinent factors having to do with disease control.

3. Army records, alone, establish the importance of immunization in the control of smallpox and typhoid fever.

4. Steady progress has been made in diphtheria control, especially during the past ten years. Plain and precipitated toxoid as specific agents leave little to be desired.

5. Scarlet fever toxin undoubtedly has immunizing value but certain factors are, at the present time, retarding the progress of further developments. The possibilities for scarlet fever "toxoid" seem favorable.

6. Whooping cough immunization is a debated question but authentic favorable reports have been published. The subject needs further study.

7. More general employment of dependable specific measures would gradually modify quarantine regulations.

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DISCUSSION

Dr. C. George Appelle, Champaign: Perhaps, the best way to discuss this paper would be to congratulate Dr. Houston on a comprehensive and detailed discussion of a technical subject. I read his paper several days ago, and I listened to it here and enjoyed it on each occasion. What I shall say will not be in any sense technical nor confined entirely to the so-called scientific or laboratory angle, or the serological or biological angle. My remarks, perhaps, will tend more in the direction of what we see in actual practice. It is hardly worth while to say anything more about

rabies except this, that perhaps I have used the anti-rabic treatment as frequently as any of the average physicians that are called upon to use it, and on no occasion have I ever had any bad effects. The most distressing thing which I think ever happened to me in administering the anti-rabic treatment was when inadvertently I failed to remove the wire from the needle and thus plunging it into the arm and proceeded to inject with great difficulty. On withdrawing the needle I discovered that the wire had been implanted in the tissues. The gentleman of color was so alarmed that he grabbed for it with his fingers and with resulting motion it slipped under the skin where it still reposes so far as I know. That is the most distressing experience I ever had with anti-rabic treatments.

Immunization against diphtheria is very interesting to me, because a good many years ago I took toxin-antitoxin myself and it made me very sick. It was such vicious stuff in those days. I find that the toxin-antitoxin as I have given it in recent years seldom ever causes any disturbance in young children. Diphtheria toxoid I have given frequently and have never gotten any reaction in young children and the reaction you get in older people is not worth talking about because you don't give it often to the elders.

Whooping-cough immunization, I haven't found very satisfactory as yet. I have tried about all the products which have been offered. I haven't had any experience with the Sauer product. I haven't found anything to give me uniform satisfaction. I have had results which I thought were glorious, and the same material in other cases proved worthless.

The writer omitted measles immunization entirely. I don't know why, unless it is such a technical subject that the easiest way out is to dodge it altogether. But I think a little something can be done in the way of immunization against measles. It may be done either with so-called convalescent serum or adult or parent's whole blood. I have had some little experience with this procedure in actual practice and I think with considerable satisfaction. It is not very difficult to do. Other methods of measles control have been advanced, for example: Exposing young children to the disease when giving them convalescent serum or parent's blood. Of course, that might be a risky proposition. Sometime ago it was proposed to have "measles tea parties," thus exposing a group of children and following up with immunization. The immunization of children against measles seems workable, at least from the little experience I have had with it.

My early experience with immunization against scarlet fever runs something like this: A man brought his boy to me for this purpose. He had considerable knowledge of bacteriology and serology and the other related biological phenomena. I gave the boy one dose. He looked over the array, the tubes increasing in size up to the 5th dose, and the man never brought the boy back for more. I never asked him why, nor did he ever offer to explain why he didn't come back. However, the product has been refined. I think, as the paper said, the only way we shall get far reaching and definite information on the subject is when it gets to be used widely in general practice. It is manifestly a different proposition to immunize children against scarlet fever in private practice than in an institution. This proposition of having the child brought into the office and set up a howl, for five weekly treatments, and no certain gage to predict reactions is not the pleasantest thing to contemplate for either parents or practitioner. The process is tedious and reactions are possible, which are two sizeable drawbacks. Perhaps, in another ten years or so we will be using immunizing material for scarlet fever with just about as much freedom and as much satisfaction as we are using it in diphtheria today.

Another peculiar thing about scarlet fever is that we haven't any definite way of diagnosing the disease until we see the rash which is nothing more than part of a symptom complex, and by that time direct and contact exposures have been made. If there were a definite bacteriologic diagnostic procedure the exposure element could be materially minimized. About the only way to get around the difficulties which beset this problem would be to immunize all susceptible children just as we attempt to do in diphtheria at the present time. Another point has to be borne in mind as regards the control of scarlet fever; it is not even now agreed that the specificity of the organism has been fully established. The probable relation of streptococcic cellulitis, erysipelas, and puerperal sepsis to scarlet fever is worthy of consideration.

Perhaps, the main thing I should point out to you in this discussion is to give a bit of courage and inspiration in the use of some of these immunizing products and in no way discourage the use of them, because I have used them all and I haven't found any of them so dangerous that I am not willing to use them again.

Dr. W. M. Talbert, Decatur: Dr. Houston has made a very complete and enlightening review of the history and value of immunization in the control of the more important acute contagious diseases.

As he has noted what has been done in the past in various fields of immunology, and the value has been definitely proven, especially where vaccination and immunization against diphtheria has been compulsory, it occurs to me that the important thing at this time is to apply these methods of immunization. Since compulsory immunization is lacking in this State, the other alternative is to educate the public along the lines of the proven value of immunization. This is a slow process and is only accomplished with the cost of many lives. One objector who magnifies a sore arm from an immunizing serum can do more to change public sentiment than the public health department can build in years.

As the writer has pointed out, severe outbreaks of smallpox are usually followed by wholesale vaccination and then the community is relatively free from the particular disease for a number of years. In a recent pre-school inspection we found only 48 out of 472 vaccinated for smallpox. The fact that Decatur has been free from smallpox for nearly two years certainly ac-

counts for such a small percentage immunized. In an effort to stress immunization during the pre-school life of the child we included vaccination and immunization against diphtheria as requirements for a 100% child and found that only 17 out of 472 qualified in our recent inspection.

During the year 1932 there were 12 deaths in the vicinity of Decatur caused directly or indirectly by diphtheria. To combat this preventable disease the Decatur Health Council, which is composed of representatives from various agencies interested in health, instituted a program for immunization of the children of the unemployed from 1 to 16 years, inclusive. These clinics are conducted in the spring and fall of each year. The children that receive the toxoid injections during the Fall receive the Schick test with the next group in the Spring. We have about completed the third series of clinics which are held on Saturday morning at intervals of three weeks at either of the local hospitals. I am glad to say that over one thousand children attended our recent clinic for treatment by the local physicians. Last year two injections of 1.5 c.c. of toxoid was given three weeks apart. This year three injections of 1 c.c. each were given. To test the value of either method, I wish to state, that of the 214 children that received two injections of 1.5 c.c. of toxoid last year, there were only nine positive Schick tests. One of these had received only 1 injection of toxoid. Two other positive reactions received the Schick test instead of the toxoid by mistake. From these figures we consider 95% immune from 2 injections of 1.5 c.c. of toxoid three weeks apart. The per cent. immune from three injections of 1 c.c. each will be determined when this group receives the Schick test in the Fall. From a report of a local physician on 100 children who received three injections of 1 c.c. each, three weeks apart, he found 100% negative Schick test.

Another interesting fact regarding the 819 children who received toxoid at the last clinic, 18 stated that they had rather sore arms and I was called to see about one-half of them at their homes. To this group which were 9 years or over, we gave the Schick test and found all that returned for a reading to be negative. Of the remainder of the 819 I have not had a single report of a sore arm at their second injection.

Recently the Parent-Teachers organization and Decatur Health Council made a city-wide survey to determine and keep a permanent record of the total immunized and un-immunized children in Decatur. In this survey every family with children was contacted and a card made out by the worker, with regards to the following information: Date, names of parents and children and addresses. The child's age, whether they have had diphtheria and particularly stress the fact that antitoxin received for treatment of diphtheria gave only temporary immunity and that further immunization was necessary; the school attended and especially stress the necessity for pre-school immunization, whether they have been immunized and whether they have received the Schick test. The tabulation of the results of this survey showed that 43% had received at least 2 injections of toxoid and 16% had received a negative Schick test. These cards are filed alphabetically in 2 groups, namely: immunized and non-immunized, and as the health department receives notification either from the clinic or local physician that the child has been immunized, his card is moved over to the immunized file. As births are recorded, new cards are made out when the child reaches one year of age.

Typhoid.—Regarding typhoid, nowhere has typhoid immunization proven more satisfactorily than in the armies, but to stress wholesale immunization in any community without regards to sanitation would be unwise. The State Department of Public Health demands that all handlers of milk or milk products be examined at least once a year for typhoid bacilli. During the year 1931 there were 14 positive typhoid reports. In 1932 there were 6, and so far this year we have no positive reports. Apparently this is weeding out the typhoid carriers among milk handlers.

Dr. Houston mentions oral administration of typhoid vaccine. Guerner compared 63,000 persons who were vaccinated orally in San Paulo, Brazil, in 1925 with 10,000 vaccinated by injection. Of the 31 cases that developed, 20 were in the sub-cutaneous group and 10 in the mouth group and one had been vaccinated both ways.

Due to the high protein content of typhoid vaccine some individuals experience reactions within 6 to 10 hours after injection, such as fever, chill, backache, headache, muscular pains and in some instances nausea and vomiting and even diarrhea. For this reason I make mention of some of the contra-indications to typhoid vaccine as listed by Beckman. Pregnancy after the 5th month, menstruation, cases of endocarditis and nephritis. Infants under two years and the dosage in children older than this should be adjusted accordingly, as their weights vary from that of the average adult of 25 years. No one with an active temperature should receive typhoid vaccine.

Scarlet Fever.—Owing to the wide variations of opinion as to the value of scarlet fever immunization, in private practice I find it difficult to advise parents when I am approached on the subject. I find it necessary to take some definite stand and advise them, as I would have my own children immunized for scarlet fever. I have decided to wait until scarlet fever becomes more prevalent and more virulent and then subject them to a Dick test, and, if the test is positive, administer the toxin according to dosage as outlined by Dr. Houston. The positive Dick reaction which is to be looked for between the 18th and 24th hour is characterized by a circumscribed area of redness and slight infiltration which measures lc. in diameter. The reaction disappears more rapidly than positive Schick reaction and must therefore be observed not later than 24 hours after the test is made. I am hoping, as the writer stated, we will soon have a scarlet fever toxoid for immunization. Smythe and Nesbit reported, concerning the administration of immunizing toxin to more than 3,500 children of Gary, Ind., Public Schools in 1928, that practically no severe reactions followed the injections.

Meningitis.—The one disease that I feared most dur-

ing my intern service at the Isolation hospital was meningococci meningitis. I had hoped the writer would evaluate the vaccination in this particular disease. I have never used the immunizing vaccine, but according to Schamberg and Kolmer, immunization with polyvalent saline vaccines of meningococci in 3 doses by subcutaneous injection at weekly intervals may prove of value as aiding in the prophylaxis of meningococcus meningitis and especially when the disease occurs in epidemic form, the immunity thus derived, lasting about two years. Passive immunization by means of antimeningitic serum has been suggested for immediate temporary immunity for doctors, nurses and attendants, but here again like scarlet fever antitoxin, the danger of serum sensitization and short duration of immunity outweigh its prophylactic value.

Considerable experimental work has been carried out in regards to prophylaxis of polyiomylitis, but owing to the inability to isolate any definite organism, we must content ourselves in the prevention of the paralysis by the use of convalescent polio-serum in the very earliest stages of the disease.

Tuberculosis.—The immunization value in TB has not been definitely proven and is not used, at least in this State, but I do wish to mention the work that has been done in Decatur last month with the tuberculin. There were 294 of the senior class tested with tuberculin. Of this number 65% did not react and 35% had varying degrees of reaction. Of the 35% positive skin test group, most of them were subjected to an x-ray of the chest and found to be negative. This is rather unusual, because, according to statistics, one or two out of every 100 high school children of this age should be found positive for TB.

Rabies.—During 1932 in Decatur, there were 20 positive cases of rabies in dogs that developed after biting individuals. Every case, of course, receiving the rabies vaccine. So far this year we had had 8 positive heads and 11 persons taking treatment. None of the 31 cases has developed any signs or symptoms of rabies.

So much for discussion of what has been done in the past regarding immunization. In the future I should like to see a closer relationship developed between the Public Health Department and the practitioner, bearing in mind that the Public Health Department is endeavoring at all times to aid the physician by education of the public in regards to the value of immunization, and in turn I should like to see every physician sell the immunization to his patient. Many physicians feel that it is unethical to seek to treat a patient for anything other than what the patient requests. Consequently he will find many of his patients drifting to other channels where they will secure such treatment free. The parent of a child who takes him to his family physician for some minor ailment would be far easier sold on immunization through a word or two from their Doctor, and many times could be administered then and there, than all the publicity from the public Health Department.

I do not care to see wholesale immunization at free clinics, but if the physician neglects his side of the program I can see no other alternative, because it must be done and will be done in order to maintain public health.

Dr. I. D. Rawlings, Chicago: I was very much pleased with Dr. Houston's paper. I think the proof of immunization and the results obtained is shown by results accomplished in actual health work. I have been in the public health work in Chicago, except for the time I was in the State service, since 1899, and I know from the results achieved what has been accomplished along the lines that have been mentioned by Dr. Houston.

In the matter of typhoid, we have, as many of you know, practically no typhoid in our city. The rate is 0.4 per hundred thousand population. We have the lowest average rate of any large city of a million population in the United States. So we practically have abolished typhoid fever in the city of Chicago. Contrast this with the record in 1892. They threatened to postpone the World's Fair because of the vast quantity of typhoid in Chicago at that time. Finally water was piped from Waukesha to Chicago to allay the suspicions of the people so that the public would visit Chicago for the World's Fair.

The same record of accomplishment is true of smallpox. You can look up the old records of the city of Chicago, or the state of Illinois, either one, and you will find way back in 1871-2 they had a big outbreak of smallpox and then a lot of vaccinations, but soon interest in vaccination lapsed and in about another decade we had another extensive outbreak, the largest one being, I think in 1882 in Chicago. Again before the World's Fair vaccination had been neglected in our city and we had an extensive outbread following the World's Fair. We had 1,043 deaths in 1894 and I don't know how many cases; over 2,500 were reported. We feel sure, however, that a smallpox outbreak will not happen after the Century of Progress Exposition because our population is well vaccinated. During the last ten years we vaccinated a much larger number of individuals in Chicago than there were births during this period, and we think we are a well vaccinated population. Last year we had eleven cases of smallpox in the city and no deaths, and some of them were imported. It shows that the public health protection given our people against smallpox has prevented the disease to a large extent.

In diphtheria, too, we find that we have, through immunization, accomplished remarkable results in that city. For example, in 1930 we had a diphtheria death rate per hundred thousand of 12.2. In 1931, it was 6.2 following immunization, chiefly among the school children. And then we started our campaign on our preschool children, with the result that the rate dropped to 1.9 in 1932. And so far this year—that is, during the first four months of 1933, if the present rate continues throughout the year we will have a death rate of about 0.4 per cent. per hundred thousand from diphtheria. We went fifty days recently without a diphtheria death. There have been only five deaths so

far this year, as compared with 176 for the same four-month period in 1930. There is no doubt but what prevention pays in all three of those diseases.

In Chicago, we are glad that there has not been more of a campaign for immunization against scarlet fever among the general public. We feel sure if it was used generally there would be much prejudice against scarlet fever immunization because of the marked reaction. A prejudice of that kind would hamper our campaign against diphtheria very much. Our campaign is largely completed so far as the preschool and school age groups are concerned. We feel if we continue immunizing babies when they are six to nine months old, we will have our community well protected against diphtheria. We know exactly what spots have the largest percentage of non-immunized children, and we are concentrating our efforts now in those four or five areas, the Polish and Italian areas especially, where the death rate has been higher than elsewhere.

I thank you.

Dr. Houston, *in closing*: With regard to Dr. Appelle's remarks about measles, I stayed away from that for the reason that most of the work that is done on measles, I believe, has to do with the use of immune blood or immune serum, fresh. When you go out into some communities, some of the poor communities where you will often find so much measles there are certainly no suitable facilities for any technical procedures for collecting blood from one individual and giving it to another.

In regard to Dr. Sauer's vaccine, I usually try to get everything that Dr. Sauer writes, and read it because of the extensive research that he has done in whooping-cough. Of course, he has the facilities for conducting this work, and until it is developed a little further, it is likely that he will be able to get better results with the vaccine than anyone else might.

Dr. Talbert mentioned immunization against meningitis. There is a scarcity of literature on that subject. One rather extensive piece of work was conducted by Ridings and Corkhill, English bacteriologists. The work was done in the Sudan among thousands of natives. A little over two years ago an epidemic of meningitis occurred. They were able to isolate nine strains of the meningococcus from these cases, and they used all these strains in the preparation of a vaccine, which they used to inoculate the natives. In fact, they inoculated almost eleven thousand. As a control they used a triple typhoid vaccine, one cc. of which contained the equivalent of 200,000,000 typhoid organisms and 100,000,000 each of Para A and B. In this group they injected a similar number, leaving over two hundred thousand natives in the community that received no injection of either. The results showed very little difference in the two groups. They used typhoid vaccine as a control because they planned to not even permit those who were doing the inoculating to know the difference between the control material and the meningococcic vaccine that they had prepared. It was almost the same in appearance and they expected a reaction that would not differ very much from the specific material for meningitis. At any rate, the uninoculated group did not develop many more cases of meningitis throughout the epidemic than those they had injected, and there was scarcely any difference at all between the two groups that had been injected, one with the meningococcic vaccine and the other with the typhoid vaccine. They concluded that the meningococcus vaccine was ineffective.

Now, I think it is important to mention again the inadvisability of getting too enthusiastic about some sort of an immunizing agent when we don't know for sure whether it is dependable. I do know from personal observation that the reaction from some of these things in the developmental stage have discredited other dependable forms of immunization, and harm has been done in that way.

BILATERAL CORONARY OCCLUSION WITH MITRAL STENOSIS: CONSIDERATION OF COMPENSATORY CIRCULATORY FACTORS IN THE HEART

Solomon R. Slater and Daniel Kornblum, Brooklyn (*Journal A. M. A., Jan. 6, 1934*), report a case of both mitral stenosis and bilateral coronary occlusion which presented a tight mitral stenosis and an occlusion of all the main coronary arteries. The pathologic changes indicated that there had been for several years a progressive arteriosclerotic narrowing of the vessels and a series of thromboses leading finally to occlusion of the main coronary arteries, which in turn existed for a fairly long time. That actual infarctions of large areas had taken place at least twice was indicated by the localized areas of fibrosis, one at the base and the other at the apex of the heart. The absence of evidence of a recent thrombosis or a fresh infarction indicated that the heart was able to survive the insult that was the final stroke in occluding all the main coronaries. That the heart apparently was able to compensate fully in the presence of this pathologic condition was one of the most interesting features of this case. The edema disappeared, the liver receded, the patient was up and about for several days without symptoms, and he was discharged from the hospital with a diagnosis of rheumatic fever (inactive), generalized arteriosclerosis, mitral stenosis and insufficiency, coronary sclerosis, fibrosis of the myocardium and congestive failure improved. The patient walked out of the hospital in high spirits but on entering a taxicab he suddenly fell. On examination immediately afterward, he was pronounced dead. At autopsy the lesions found besides those of the heart were infarctions in the lung, chronic cholecystitis, fatty degeneration of the liver, cyst in the pituitary gland, and cerebral edema and congestion.

CEREBRAL CYSTS

Winchell McK. Craig and James W. Kernohan, Rochester, Minn. (*Journal A. M. A.*, Jan. 6. 1934), present cases illustrating a variety of cerebral cysts and state that the cerebral cysts encountered at operation may be congenital, inflammatory, traumatic, parasitic

or neoplastic. To the neurosurgeon, the most important and common group encountered is that which occurs with neoplasms; these were found to be associated with practically all types of primary tumors of the brain above the tentorium. A much rarer type of tumor in this situation, containing cysts, is the meningioma, of which only two were encountered. It was found that only the neoplastic cysts consistently contained xanthochromic fluid, whereas all the other cysts contained clear fluid. It was noted further that in general the more benign the glioma, the more prone it was to undergo cystic degeneration. Decompression and simple drainage was often followed by a long period of palliative relief, thus allowing the more radical procedures, such as partial or complete removal of the tumor when the patient's condition warranted. Following initial drainage, subsequent aspirations were sometimes necessary to prolong the palliation. Several operative procedures were sometimes necessary for the more benign tumors in order to remove them completely.

GRANULOMA COCCIDIOIDES: FURTHER OBSERVATIONS ON USE OF ANTIMONY AND POTASSIUM TARTRATE AND ROENTGEN RAYS IN TREATMENT

C. C. Tomlinson and Paul Bancroft, Omaha (*Journal A. M. A.*, Jan. 6, 1934), present evident which indicates that antimony and potassium tartrate, applied locally, is of value in the treatment of granuloma coccidioides. They cite their previous case, give its progress to date and report an additional case in which the patient has appeared to be in excellent health during the past two years, but they have continued to give him biweekly injections of the solution of antimony and potassium tartrate in doses of 5 cc. They believe that their two case reports are evidence that prolonged treatment with intravenous injections of antimony and potassium tartrate and local roentgen therapy is effective in the treatment of grauloma coccidioides. Admitting that their two apparent cures and that of Guy and Jacob do not supply conclusive evidence, they know of no other report in which comparable results have been sustained over a period of several years. They are convinced that the treatment must be continued for a long time.

ELECTRIC LOVE

If she wants a date—meter.
If she comes to call—receiver.
If she wants an escort—conductor.
If you think she's picking your pockets—detector.
If she's slow of comprehension—accelerator.
If she goes up in the air—condenser.
If she's hungry—feeder.
If she's a poor cook—discharger.
If she eats too much—rectifier.
If her hands are cold—heater.
If she fumes and sputters—insulator.
If she is narrow in her views—amplifier.

—*U. S. C. Wampus.*

CONGENITAL OBSTRUCTION OF THE SMALL INTESTINE

William E. Ladd, Boston (*Journal A. M. A.*, Nov. 4, 1933), presents a study of sixty cases (from birth to 12 years of age) of congenital intestinal obstruction due to intrinsic or extrinsic obstruction. In his series of patients there were twenty in whom the obstruction was due to malrotation. Of these nine recovered. The nine patients recovered as the result of freeing any attachment of colon or ileum to the right of the duodenum until the duodenum is entirely in view and lies to the right of the cecum and terminal ileum. Two of them had had a reduction of volvulus followed by recurrence of the obstruction which required the freeing operation for permanent relief. There were forty patients with obstruction due to intrinsic causes. Of these, eight recovered. In five patients the stenosis was in the duodenum; all of them were relieved by duodenojejunostomy. One of the patients had had a previous gastrojejunostomy which had given only temporary relief. One patient with ileal stenosis was cured by resection and ileocolostomy. One patient had an atresia of the jejunum. A jejunojejunostomy was performed; it afforded complete relief. However, this patient contracted pneumonia two months later and died. Necropsy showed the anastomosis to be functioning perfectly with dilatation of the distal segment to normal size. Another patient had an atresia of the terminal ileum with perforation and diffuse peritonitis. He had a resection of 4 or 5 inches of terminal ileum and an ileostomy performed on the seventh day of life. An ileocolostomy was done when he was 2 months old. Observation ten months later showed him to be well at that time.

TREATMENT OF SCARLET FEVER WITH ANTITOXIN

The results of Luke W. Hunt, Chicago (*Journal A. M. A.*, Nov. 4, 1933), in 2,303 cases of scarlet fever of different degrees of severity, in 882 of which scarlet fever antitoxin was administered indicate that: 1. Scarlet fever antitoxin exerts a favorable influence on the clinical course of the disease. This is evidenced by a lessened severity of the febrile stage of the disease, on the course and duration of the fever, and on the extent and duration of the skin lesions. 2. Complications are less frequent in patients treated with an adequate dosage of scarlet fever antitoxin. 3. Almost all the complications that occurred in the series in which antitoxin was administered appeared in patients who received the antitoxin relatively late in the disease. 4. As in diphtheria, the best results in the treatment of scarlet fever with antitoxin on the clinical course of the disease and the prevention of complications are obtained when the antitoxin is given early in the course of the disease, and in sufficient dosage. 5. Serious complications often develop from mild cases of scarlet fever treated without antitoxin. 6. Serum reactions occurred in 22.7 per cent of the patients of the series or in 20.8 per cent if those with a history of previous administration of serum are excluded. They were not more severe and were less frequent than after the use of diphtheria antitoxin.

EVERY ETHICAL PHYSICIAN IN THE *STATE SHOULD BELONG TO THE* ILLINOIS STATE MEDICAL SOCIETY

In numbers there is strength. United we stand, divided we fall. A united medical profession can brush away any and all obstacles. It is next to impossible to find a really successful physician who has obtained fame outside the pale of organized medicine.

Are all the eligible physicians in your county members of your local medical society? If non-members of local society are discovered get busy and try to induce them to join at the earliest opportunity.

Since the publication of the last edition of the national medical directory, one thousand or more recent graduates and practitioners from other states have located in cities in Illinois. Great numbers have moved within the state from one city to another; an alarming number of physicians have died in the interim; hundreds have moved to other states and a similar number have come into Illinois from other commonwealths.

Below we publish as nearly as possible correct and up-to-date list of physicians residing in towns and cities in Illinois outside of Chicago and Cook County. No attempt had been made to indicate membership in local, state or national medical societies.

The final list of doctors residing outside of Cook County appears herewith.

ST. CHARLES (KANE)
Anderson, Chas. Edward
Haskins, Fredk. E.
Lambert, Richard Jay
Langum, Ival Goodver Hanson
Lowry, Edith Belle
Meyerson Solomon B.
Norton, Garret Amos
Potter, Chas. Arthur
Selling, Lowell Sinn (See Chicago)

ST. DAVID (FULTON)
Mercey, Raymond John

ST. ELMO (FAYETTE)
Lewis, Harry Overton
Whitefort, Arthur R.
Whitefort, Wm. J. (R. D. 3, Liberty, Miss.)

ST. FRANCISVILLE (LAWRENCE)
Arnold, Frank
Brian, Victor McMurry
Snider, Randolph F.

ST. JACOB (MADISON)
Meriwether, Alfred P.

ST. JOSEPH (CHAMPAIGN)
Casto, Parley Casper

ST. LIBORY (ST. CLAIR)
Heely, Louis Andrew (See Belleville)

STE. MARIE (JASPER)
Brown, Grover Cleveland

ST. PETER (FAYETTE)
Smith, Frank S.

SALEM (MARION)
Cunningham, Harry Auron
Laney, Thos. David
Logan, Harry L.
Porter, Arthur Silas
Pribble, Eugene B.
Schoonover, Herbert Eldredge

SANDOVAL (MARION)
Carrigan, Saml. Davidson

SANDWICH (DE KALB)
Culver, Louise L.
Lakin, Robt. Griffin
Montgomery, Max Malcom
Potter, Wendell Abel

SAN JOSE (MASON)
Milligan, James D.

SAUNEMIN (LIVINGSTON)
Coss, Osman Ames
Ross, Chas. F.

SAVANNA (CARROLL)
Burton, Richard C.
Cottral, Geo. Henry
Hussey, Lemuel Bourne
McGrath, Wilmer Weir
Schreiter, Jos. Benj.
Turner, Edward Claude

SAYBROOK (McLEAN)
Cline, Corles Bedford
Hazel, John Bishop
Jenson, James

SCALES MOUND (JO DAVIESS)
Sutton, Roscoe E.

SCOTTVILLE (MACOUPIN)
Berryman, John Wm.

SEATON (MERCER)
Bird, Raymond Geo. (See Aleda)
Hainline, Thos. C.

SECOR (WOODFORD)
Allen, David Wm.

SENECA (LA SALLE)
Coulter, Wilbur Edwin
Twohey, Francis James P.

SESSER (FRANKLIN)
Ward, Wm. H.

SEWARD (WINNEBAGO)
Martin, Donald David

SEYMOUR (CHAMPAIGN)
Hartrick, Louis Eugene

SHABBONA (DE KALB)
Brewer, Edwin Jason
Moore, Fredk. Benj.

SHANNON (CARROLL)
Grassau, Andrew
Mitchell, Edward P.

SHAWNEETOWN (GALLATIN)
Martin, Wm. Wallace
Mershimer, Wm. C. (Junction)

SHEFFIELD (BUREAU)
Duncan, Floyd Ernest
Giltner, Otis Beryl
Russell, Ben.

SHELBYVILLE (SHELBY)
Auld, Frank Parkinson
Hulick, Chas. Henry
Mizell, Adolph G.
Mizell, Wm. R.
Monroe, Henry Everett
Thompson, Theo.
Turney, Wm. G.
Westervelt, J. C.
Wilson, Robt. Bruce

SHELDON (IROQUOIS)
Everhart, Arthur M.
Gibson, Horace
Seever, Chas. Wilber
Wood, Henry Willis

SHERIDAN (LA SALLE)
Christian, Lorne Wm.

SHERRARD (MERCER)
Murrell, Chas. Milton

SHIRLAND (WINNEBAGO)
Savage, Saml. Micajah

SHUMWAY (EFFINGHAM)
Haumesser, Geo. J. L.
Lorton, Saml. Clifford

SIBLEY (FORD)
Absher, Albert Allen

SIDELL (VERMILION)
Dillon, Carl C.
James, Thos. Franklin
McGavran, Edward Grafton

SIDNEY (CHAMPAIGN)
Metzel, Chas. Himes

SIGNAL HILL (EAST ST. LOUIS P. O.) (ST. CLAIR)
Boyd, Tullie Van (See East St. Louis)
McQuillan, Eugene Albert (See East St. Louis)
Spannagel, Wm. Christian (See East St. Louis)
Wilhelmj, Chas. F. W. (See East St. Louis)

SILVIS (ROCK ISLAND)
Chapman, Wm. Day
SIMPSON (JOHNSON)
Kerley, Thos. B.
SMITHSHIRE (WARREN)
Kimery, Philip Erasmus
SMITHTON (S. CLAIR)
Bock, Gustavus G.
SOMONAUK (DE KALB)
Mosher, Benj. D.
Scheppler, Fred Emanuel
SORENTO (BOND)
Chittum, Jason D.
SOUTH ELGIN (KANE)
Struve, Carl P.
SOUTH HOLLAND (COOK)
Walvoord, Gerrit Wm.
SPARLAND (MARSHALL)
Royce, Emery E.
SPARTA (RANDOLPH)
Boynton, Chas. Otis
Roberson, Noah Francis
Stevenson, Benj. J.
Stevenson, Nevin G.
Weir, James Wallace
Weir, Wm. Foster
SPEER (STARK)
McBroom, Elam Rowland
SPRINGERTON (WHITE)
Cremeens, Geo. L.
SPRINGFIELD (SANGAMON)
Amant, Harry, 719 N. 4th St.; office, 731½ E. North Grand Ave.
Armstrong, Wilber Price, 824 S. 6th St.; office, 616 E. Capitol Ave.
Armstrong, Wilber Price, Jr., 824 S. 6th St.; office, 616 E. Capitol Ave.
Aschauer, Albert Geo., 1601 W. Lawrence Ave.; office, 322½ S. 6th St.
Aschauer, Henry August, 629 N. Rutledge St.; office, 407 S. 7th St.
Bain, Walter Gelvin, 1517 S. Noble Ave.; office, St. John's Hospital
Ball, Elizabeth Browning, 710 W. Monroe St.; office, Department of Public Health
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McShane, Gerald Stone
Miltenberger, Robt. Edgar
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Rathbun, Isaac Hale
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Cavins, Stanley Thos.

STAUNTON (MACOUPIN)

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Rosson, James Knox

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Terry, Harry Alfred

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Pearce, Percival, 305 Glendenning Pl.; office, 125 Washington St.
Roemer, Jacob F., 432 Ash St.
Ross, Ellison Lloyd, 1509 N. Sheridan Rd.; office, 215 N. Sheridan Rd.
Smith, Robt. Gittens, 816 Mott Ave.; office, 701 S. Genesee Rd.
Stone, Florence Aurthreholt, 404 Keith St.; office, 4 S. Genesee St.
Toomajan, Harry John, 537 N. Elmwood Ave.; office, 708 McAlister Ave.
Waldmann, Louis Francis, 223 Stewart Ave.; office, 4 S. Genesee St.
Walter, John Edgar, 2026 N. Sheridan Rd.; office, 126 Madison St.

WAVERLY (MORGAN)
Allyn, Paul R.
Allyn, Walter Henderson
Crum, Edwin Wallace
Hughes, Nathan J.

WAYNE (DU PAGE)
Guild, Wm. Lyman, (Wheaton)

WAYNE CITY (WAYNE)
Cates, Edward M.
Dulaney, Wm. Albion

WAYNESVILLE (DE WITT)
Marvel, John Everett

WELDON (DE WITT)
Meltzer, Herman Leo

WELLINGTON (IROQUOIS)
Sistler, Adolph Otto

WENONA (MARSHALL)
Bufkin, Lindley Liddle
Dunham, James B.
Love, Geo. T.
Yarnell, Oliver Benj.

WEST BROOKLYN (LEE)
White, Earl C.

WEST CHICAGO (DU PAGE)
Isherwood, Paul Alonzo
Kinne, Harry Winfield
Lunak, Karel J.
Madison, Geo. L.
McGuinness, Geo. Alfred
Santee, Harris Ellett (See Chicago)

WESTFIELD (CLARK)
Anderson, Horace V.
Hall, Joseph
Hinkley, Junie J.
Houser, Harvey Clifford

WEST FRANKFORT (FRANKLIN)
Albert, Albert S.
Carlton, Henry Oliver, 1103 E. Poplar St.; office, Masonic Bldg.
Eldridge, Chas. Henry, 214 E. Oak St.; office, 112½ E. Main St.
Ellis, James J.
Fox, Ben., 902 Poplar St.; office, 115 E. Main St.
Greenbaum, Fredk., 111½ E. Main St.
Johnson, John Arthur
Koons, Chas. Edward, 402 N. Taft St.; office, Masonic Bldg.
Lamont, Chas. Leroy
Lane, Chas. O., 1905 E. Main St.; office, 115 E. Main St.
MacGregor, John Augier, 902 E. Elm St.; office, 325 E. Main St.
McInnes, Mae Harrison Dillard, 116 E. Main St.

Modert, Alson W., West Frankfort Union Hospital
Webb, Byford Hodgen
Williams, James Ernest (See Benton)

WEST McHENRY (McHENRY)
Froehlich, Alexander J.

WESTMONT (DU PAGE)
Gaffey, Frank Harold
Manning, Roy Franklin

WEST POINT (HANCOCK)
Bryant, John Rhodes
Gillham, C. W.

WEST SALEM (EDWARDS)
Buxton, Wm. E.
Houser, John A.
Schaefer, Herman L.
Weber, Timothy Chas.

WEST UNION (CLARK)
Cullop, Saml.
Highsmith, Chas. Otto
Weir, Silas Wilkin

WESTVILLE (VERMILION)
Gundrum, Mark Duane
Hickman, John Moore
Williams, Thos. P.

WESTWOOD (CHICAGO P. O.) (COOK)
Ewing, Harry Russell (See Chicago)

WHEATON (DU PAGE)
Blanchard, Frances S. Carothers
Dyche, Geo. Boyd
Guild, Wm. Lyman (See Wayne)
Hockman, Robt. Wm.
Jamison, Dan DeWitt
Jones, Alden Bliss
Lyon, Howard N. (See Chicago)
Manning, Geo. Nelson
Oelke, Emil Karl Heinrich
Orth, Danl. Adam (See Chicago)
Raach, John Henry
Reeder, Wm. Geo. (See Chicago)

WHEELER (JASPER)
Clagg, John Clinton
Wishard, Robt. Seymour

WHITEHALL (GREENE)
Billings, Junius S.
Carrison, Wm. H.
Jarman, Alonzo Russell
McLaren, Frank Nelson
Peek, Everett J.

WHITE HEATH (PIATT)
Sievers, Wm. Newton

WILLIAMSFIELD (KNOX)
Oberholtzer, Edward J.

WILLIAMSVILLE (SANGAMON)
Shearl, James Monroe
Stuttle, Albert L.

WILLISVILLE (PERRY)
Keller, Jacob M.

WILLOW HILL (JASPER)
Berns, Simon P.

WILLOW SPRINGS (COOK)
Baker, Ranson Bright

WILMINGTON (WILL)
Merkel, Henry Anthony
Willson, Chas. Reed

WINCHESTER (SCOTT)
Davis, Landis Young
Eckman, John Wesley, Jr.
Jones, Ralph Roy
O'Reilly, Wm. M.
Straight, Geo. M.

WINDSOR (SHELBY)
Donovan, John H.
Storm, Arthur B.

WINFIELD (DU PAGE)
Amacher, Chas. F. (See Hinsdale)

WINNEBAGO (WINNEBAGO)
Elsen, Matt
Howell, Wm. Sullivan

WINSLOW (STEPHENSON)
Shenberger, Jacob Francis
Shook, Frank James

WITT (MONTGOMERY)
Adams, John Wilson
Lockhart, Chas. H.

WOODHULL (HENRY)
Carlson, Carl W.
Cowles, Geo. Henry

WOOD RIVER (MADISON)
Baker, Lyle Lee (See St. Louis)
Barton, Wm. Edward
Kessinger, Jacob Thos.
Konzen, Leo Henry
Lumley, Zoda D.
McKinney, Guy Lesemby
Morgan, Harry Price
Roberson, Brooks Leek
Rockefeller, Le Roy D.
Wedig, John Harrison

WOODSTOCK (McHENRY)
Baccus, Clyde Franklin
Brand, Eli Thos.
McAuliffe, Edwin Louis, R. D.
McClusky, Otto Wilber
Nelson, Oliver Earl
Newton, Wm. Howard
Sandeen, Henry Wm.
Wright, Glenn E.

WORDEN (MADISON)
Dorr, Chas. E.

WYANET (BUREAU)
Herrick, Richard E.
Nelson, Geo. Cassell

WYOMING (STARK)
McMackin, Curtis C.
Wead, Alma T.
Wead, John Trimmer
Wyllys, Henry A.

XENIA (CLAY)
Bryan, Jos. Lyman
Fatheree, Delbert E.
Thompson, Thos. W.

YATES CITY (KNOX)
Keene, Warren Walker

YORKVILLE (KENDALL)
Groner, Frederic Michael
Perkins, Lyman A.
Ritt, Arnold Elmer Fredk.

YORKTOWN (TAMPICO P. O.) (Bureau)
Weber, Robt.

ZEIGLER (FRANKLIN)
Evans, Claude Monroe
Gates, Leo Vincent
Jones, Thos. Alfred

ZION (LAKE)
Blanks, John Harrison
Brown, Mercer Thos.
Ruby, Wilber Olan

USE OF DINITROPHENOL IN OBESITY AND RELATED CONDITIONS

M. L. Tainter, A. B. Stockton and W. C. Cutting, San Francisco (*Journal A. M. A.*, Nov. 4, 1933), used alpha dinitrophenol (1-2-4) in treating 113 consecutive cases of obesity. The treatment was not successful in twelve; in three because of inadequate loss of weight, probably due to insufficient dosage, and in the other nine because of undesirable reactions to the drug. An average loss of weight of between 2 and 3 pounds weekly was produced by an average daily dose of 0.3 Gm. (5 grains) of the sodium dinitrophenol, in capsules taken with meals. The drug has been administered to individual patients continuously for as long as four months without demonstrable evidences of cumulative or toxic effects. The hypertension and albuminuria associated with obesity have been improved by dinitrophenol in a limited number of patients responding with reductions of body weight. The most important side action has been a skin rash, which occurred in 7 per cent of the patients and which necessitated stoppage of treatment in 4.4 per cent of them. The next most important side action was a loss of taste for salt and sweet, observed in 5.3 per cent of the patients. Both of these side actions cleared up quickly without sequelal. A suitable regimen of dinitrophenol medication for adults would appear to be an initial daily dose of 100 mg. of the sodium salt orally, taken with meals, with an increase at weekly intervals until a dose is established that causes a loss of body weight of between 2 and 3 pounds weekly or too marked or unpleasant symptoms of warmth and sweating.

PRESENT STATUS OF VARIOUS SPINAL ANESTHETICS AND THEIR CLINICAL USEFULNESS

After a careful survey and use of several drugs, Frank W. Marvin, Boston (*Journal A. M. A.*, Nov. 4, 1933), confined his study to procaine hydrochloride, neothesin (benzoylgamma [2-methylpiperidine] propanol

hydrochloride), nupercaine, and pantocain (para-butylaminobenzoyl-dimethyl aminoethanol hydrochloride) at the Boston City Hospital during the past sixteen months without a fatality. These drugs have been used separately and in different combinations for very definite purposes, with the result that he has formed a strong opinion that it is not necessary to mix them. He advises the use of them separately for each individual case. Procaine hydrochloride and pantocain are the drugs frequently employed. Of these two drugs, pantocain offers everything that procaine hydrochloride will accomplish and has the advantage that it does not lower the blood pressure as does procain. Furthermore, clinically, it is apparently less toxic than procaine hydrochloride, besides producing a longer and more satisfactory anesthesia.

CONJUNCTIVAL VESSELS

A. D. Ruedemann, Cleveland (*Journal A. M. A.*, Nov. 4, 1933), offers a clinical study of the blood vessels of the conjunctiva, undertaken to determine to what extent their condition would aid in the diagnosis of diseases of the blood and vascular system. His observations are: 1. The vascular system of the conjunctiva lies in two planes; the superficial layer and the branches of the anterior ciliary arteries. 2. There is a heavy capillary plexus at the limbus. 3. Speed of flow, size of vessels and the action of various substances can easily be studied in the conjunctival vessels. This field apparently offers an excellent location for physiologic vascular study, as all action is in the living tissue in normal position and under controlled conditions. 4 Pathologically, minute hemorrhages are commonly found. 5. Aneurysmal dilatations are more common than in the retina. 6. Thrombi and emboi apparently are present more commonly than had been suspected. 7. Decrease of the capillary bed in the conjunctiva has been coincident with similar change shown by the histamine flare test. 8. Although time-consuming, it seems likely that when normal standards have been established, the study will reveal sufficient information to warrant investigation of the conjunctival capillaries in all cases in which blood or vascular disease is suspected. 9. The vessels can be measured and counted and, to date, the patients have experienced no deleterious effect from the illumination.

CHRONIC ULCERATIVE COLITIS: A DISEASE OF SYSTEMIC ORIGIN

Louis A. Buie and J. Arnold Bargen, Rochester, Minn. (*Journal A. M. A.*, Nov. 4, 1933), review in part what has been learned about the bacteriology of chronic ulcerative colitis in the last ten years and correlate the living and the postmortem pathologic conditions. They discuss the bacteriology, the proctoscopic characteristics and the microscopic characteristics in the tissue in chronic ulcerative colitis.

AS YOU LIKE IT

Man, honest, will take anything.—*Ad in a Jacksonville paper.*

Society Proceedings

BOND COUNTY

The Bond County Medical Society met in the basement of the library building, Dec. 8, 1933, Called to order by the President, Dr. T. D. Brown. The main subject was, Shall the Society adopt the schedule price, presented by the State Society for Medical Aid for unemployed receiving Federal Aid. This Fee Bill was unanimously adopted. The election of officers for 1934 followed. Dr. W. C. Dixon of Greenville was elected president; Dr. J. D. Chittum of Sonento, Ill., vice-president; Dr. W. F. Easley of Greenville, Ill., secretary and treasurer; board censors: Dr. T. D. Brown, Dr. W. L. Hall and Dr. D. R. Wilkin; delegate to State Medical Society, Dr. W. C. Dixon, alternate, Dr. J. D. Chittum; program committee, Dr. W. C. Dixon, L. J. Cordonnier and W. T. Easley. The following committee appointed met with the local relief committee for relief of Indigents for Medical Care. The society adjourned.

W. C. DIXON, President.
W. T. EASEY, Secretary.

CHAMPAIGN COUNTY

The regular monthly meeting of the Champaign County Medical Society was held on Wednesday, January 10. Drs. Jirka and Woodruff of the Department of Health of the State of Illinois, put on the program. Dr. Jirka speaking on "Tularemia" and "Amebiasis," and Dr. Woodruff on "The Doctor and Vital Statistics." Both talks were appreciated and enjoyed very much. We had an attendance of fifty-four, including the Superintendents and Technicians from each of our five Hospitals as well as the three Visiting Nurses.

Dr. Jno. O'Connell of Rantoul, was voted into membership.

Respectfully yours,
W. M. HONN, M. D., President.

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Regular Meeting, Wednesday, January 10, 1934

PROGRAMME

LEUKOPENIAS FROM THE STANDPOINT OF THE GENERAL PRACTITIONER

Opening Statement—J. H. J. Upham, Dean, Ohio State University College of Medicine.

The Leukopenias—Special Reference to Agranulocytosis—Chas. A. Doan, Director, Dept. of Medical and Surgical Research, Ohio State University Medical School.

Discussion — Physiology — Andrew C. Ivy, Prof. Physiology and Pharmacology, Northwestern University Medical School.

Internal Medicine—Ernest E. Irons, Clinical Professor and Dean Rush Medical School.

Laryngology—Frank Novak, Jr.

MEMORIAL MEETING

Sunday, January 14, 1934, Three O'clock
Murphy Memorial Hall, 50 East Erie Street.
Programme

Processional—Magdalen Maire, Organist.

Assembly—Cadet First Sgt. W. H. Chase, Culver Military Academy Bugler.

"Beautiful Isle of Somewhere"—Imperial Male Quartette.

N. S. Davis—Founder of the Chicago Medical Society—James B. Herrick, Society of Medical History of Chicago.

"Lead Kindly Light"—Imperial Male Quartette.

The Beneficence of Medicine—Pastor Preston Bradley, Peoples Church of Chicago.

"Crossing the Bar"—Imperial Male Quartette.

Nineteen Thirty-Three Necrology of the Chicago Medical Society by Branches (Lantern slides).

"End of the Perfect Day"—Imperial Male Quartette.

Taps—Cadet First Sgt. W. H. Chase, Culver Military Academy Bugler.

Recessional—Magdalen Maire, Organist.

Regular Meeting, Wednesday, January 17, 1934
Programme

8:30 P. M. MEDICAL ECONOMICS.

General Survey—Peter T. Swanish, Ph. D., Head of Dept. of Economics, Loyola University.

The Philadelphia Plan—Francis A. Faught, Secretary, Philadelphia County Medical Society.

Discussion—Herman Kretschmer, Chairman, Medical Economics Committee, Chicago Medical Society.

Regular Meeting, Wednesday, January 24, 1934
Programme

8:30 P. M. THE GALL BLADDER IN GENERAL PRACTICE.

Physiology—A. J. Carlson, Chairman and Professor Physiology, University of Chicago.

Internal Medicine—George Coleman, Assistant Professor Clinical Medicine, Rush Medical College.

Surgery—George W. Crile, Cleveland Clinic, Cleveland, Ohio.

Discussion—Hugh McKenna, Head of General Surgical Department, St. Joseph Hospital.

Regular Meeting, Wednesday, January 31, 1934
Programme

8:30 P. M. CANCER OF THE STOMACH.

Early Diagnosis and Treatment — Dr. Gatewood, Clinical Prof. Surg., Rush Medical College.

Discussion—Alfred Strauss, Attending Surgeon, Michael Reese and Mt. Sinai Hospitals.

Recent Biological Advance in Cancer Research—C. C. Little, Managing Director, American Society for Control of Cancer.

Discussion—Carroll Birch, Asst. Prof. Medicine, Univ. of Ill. College of Medicine.

MADISON COUNTY

The Madison County Medical Society met on Jan. 5, 1934, at the Madison County Sanitarium. Dr. Thomas B. Knox, Councilor of the Sixth District, was the speaker. His topic was "The Doctor in the Medical Care of the Unemployed." It was very extensively discussed.

Sincerely,
D. D. MONROE, Secretary.

WINNEBAGO COUNTY

On Tuesday evening, January 9, we held our Annual Meeting and election of officers. The following officers were elected: president, Dr. King G. Woodward; vice-president, Dr. Joseph Lundholm; secretary-treasurer, Dr. Eberhardt H. Quandt; censor, Dr. James M. Severson, and medical legal advisor, Dr. Vincent Guagliata.

We closed the year 1933 with 107 active members and a loss of only two because of unpaid dues.

An event of the evening was the election to Honorary Membership of Dr. W. L. Ransom, of Rockford, Illinois, who has practiced in this County for sixty years and who is now the oldest living graduate of Northwestern University Medical School.

During 1933 our Society held ten monthly meetings with an average attendance of 78 and thirty-seven weekly meetings with an average of 39. The spirit in our Society is excellent and we are looking forward to a better year. I remain,

Very truly yours,
E. H. QUANDT.

Marriages

Charles Kennedy Carey, Rushville, Ill., to Miss Geneva Strong at Mount Vernon, Dec. 10, 1933.

Philip R. McGrath to Miss Margaret Mary Watson, both of Peoria, Ill., Oct. 19, 1933.

Albert Rufus Sheldon to Miss Grace Glidden, both of Highland Park, Ill., Dec. 15, 1933.

Sylvan William Simon to Miss Jeanne Rice, both of Chicago, January 5.

Howard Wakefield to Miss Thelma I. Roach, both of Chicago, Dec. 31, 1933.

Personals

Dr. Charles F. Yerger has been promoted to associate clinical professor of ophthalmology at Loyola University School of Medicine.

Dr. Joseph Welfeld has been appointed associate clinical professor in the department of genito-urinary diseases at Loyola University School of Medicine.

Dr. Frank Smithies, Chicago, spoke before the Will-Grundy County Medical Society, January 10, on "Pernicious Anemia and Newer Aspects of Treatment."

At a meeting of the Iroquois County Medical

Society, January 11, Dr. Bernard Fantus, Chicago, presented a paper on "Therapy of Rheumatic Fever."

Dr. Elven J. Berkheiser, Chicago, spoke before the Peoria City Medical Society, December 19, on "Fractures of the Ankle Joint."

Dr. John G. Young has been named physician for the state reformatory at Pontiac, succeeding Dr. James A. Marshall.

Dr. Robert R. Smith, Mount Vernon, has been appointed managing officer of the Kankakee State Hospital.

Dr. Otto H. Schwarz, St. Louis, addressed the Chicago Gynecological Society, January 19, on "Treatment of the Late Toxemias of Pregnancy."

Dr. Robert C. Hitchings, Donovan, was guest of honor at a banquet, November 26, on the occasion of his sixty-seventh birthday.

The Chicago Society of Allergy was addressed, January 15, by Dr. Ludvig Hektoen and William H. Welker, Ph.D., on "Methods of Immunization" and "Autogenicity of Proteins," respectively.

Among others, Dr. Jerome R. Head discussed "Clinical Observations on the Intrapleural Pressure" before the Chicago Society of Internal Medicine, January 22.

Dr. Roderic P. O'Connor, San Francisco, spoke before the Chicago Ophthalmological Society, January 15, on "Cataract Extraction by the Undetached Conjunctival Bridge Method After Preliminary Iridectomy."

At a meeting of the Chicago Neurological Society, January 18, the speakers included Ralph W. Barris on "Optic Connections of Midbrain and Thalamus."

Dr. Kamil Schulhof addressed the McDonagh Society for Clinical Research, January 19, on "Significance of Electric Charges for the Transport of Substances in the Tissues."

Speakers before the Chicago Orthopedic Club, January 19, were Drs. Peter A. Bendixen, Davenport, Iowa, on "Fractures of the Elbow," and Claud R. G. Forrester, "Reduction of Fractures Under Local Anesthesia Together with Ambulatory Treatment."

News Notes

—A contract has been let for the construction of the new Henrotin Policlinic Hospital, to be known as the Chicago Policlinic. To be erected at a cost of about $500,000, the new building will be six stories high and will have 100 beds.

—The Chicago Gynecological Society recently organized a maternal welfare committee to make a study of maternal and fetal mortality in Chicago. The obstetric mortality and morbidity of mothers and babies will be considered with a view to studying controllable factors.

—The Springfield Medical Club honored Drs. George F. Stericker and Wilber P. Armstrong at a dinner meeting, December 19, in observance of their completion of fifty years in the practice of medicine. Dr. Stericker graduated in 1883 from Leeds School of Medicine in Leeds, England, and Dr. Armstrong from Homeopathic Hospital College, Cleveland, in 1884. Both physicians have sons associated with them in the practice of medicine.

—The first official "memorial meeting" of the Chicago Medical Society was held, January 14, at the Murphy Memorial Hall, to honor the memory of members who died in 1933. The speakers, Dr. James B. Herrick, president of the Society of Medical History, who will review the life of Nathan Smith Davis, one of the founders of the Chicago Medical Society and the Americal Medical Association, and Preston Bradley, pastor, People's Church of Chicago, whose subject will be "The Beneficence of Medicine."

—Clarence C. Little, Sc.D., director, Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine, and managing director, American Society for the Control of Cancer, participated in a symposium on cancer before the Chicago Medical Society, January 31, discussing the "Recent Biological Advance in Cancer Research." Dr. Gatewood will speak on the "Early Diagnosis and Treatment." Dr. Little will address a public meeting in the afternoon at the Murphy Memorial Hall on "What You Can Do for Cancer Control." This session is sponsored by the woman's auxiliary of the Chicago Medical Society.

—The Women and Children's Hospital observed its seventieth anniversary, January 5-6, in conjunction with the fifth anniversary of the opening of its $1,000,000 building. The staff is composed entirely of women physicians. The institution was founded by Dr. Mary Thompson to care for women and children of veterans of

the Civil War during an epidemic of cholera. One of the two hospitals in the city at that time did not admit women patients and the other did not allow women physicians to practice, it was reported. Maud Slye of the University of Chicago was among the speakers in the anniversary program.

—Articles of incorporation were filed, January 3, as the first step toward the creation of a medical center in Cook County. With the objective of coordinating all the medical facilities in Chicago into one great medical center, it is planned to centralize in the vicinity of Cook County Hospital. Using the present facilities as a nucleus, it is proposed to replace unrelated structures with new buildings and to improve the landscaping of the area. The purpose of the corporation, known as the Medical Park at Chicago, is to promote and establish the medical center, effect passage of favorable legislation, and arouse interest for the project. Among the directors are Drs. Bernard Fantus, Frederick Tice, Austin A. Hayden, Charles Davison and H. Edmond Quinn, and Mr. Asa S. Bacon, superintendent of Presbyterian Hospital.

—The Frances E. Willard Hospital announces the closing of its Dispensary. This action was taken after careful consideration and study on the part of the management in concurrence with the Medical Staff.

—A joint session of the Chicago Laryngological and Otological Society and the middle section of the American Laryngological, Rhinological and Otological Society was held at the Ambassador Hotel, January 9. The program was presented by the following:

Dr. Howard C. Ballenger, Bacteremia and Acute Upper Respiratory Infections.

Dr. William Mithoefer, Cincinnati, Hypertonic Muscles of the Neck as a Cause of Headaches.

Dr. Harris H. Vail, Cincinnati, Disease of the Sphenoid Sinus as a Cause of Reflex Pain in the Head.

Dr. Elmer W. Hagens, Anatomy and Pathology of the Petrous Bone, Based on the Study of Fifty Temporal Bones.

Dr. Isaac A. Abt, Postanginal Sepsis.

Leslie B. Arey, Ph.D., The Crypt Systems of the Tonsils Throughout the Life Span.

Dr. John W. Carmack, Indianapolis, Treatment of Lateral Sinus Thrombosis, with Report of a Case of Canalization of the Sigmoid and Jugular Vein After Ligation.

Dr. Harry L. Pollock, Genuine Ozena in the Light of Recent Investigations.

Arthur Isaac Kendall, Dr.P.H., professor of research bacteriology, Northwestern University Medical School, was guest speaker at the dinner meeting, on "New Bacteriology."

—A special program of lectures and demonstrations in medicine will be held under the direction of the Mayo Foundation from March 5 to 9, inclusive. Mornings will be devoted to surgery, demonstrations of oxygen therapy and of intravenous therapy, and consideration of post-operative complications. In the afternoons medical subjects, including gastro-enterology, dermatology and syphilis, will be discussed, and a symposium on dyspnea will be held. In the evenings clinico-pathologic conferences will be conducted.

While this program is arranged primarily for the Fellows of the Foundation, visiting physicians are invited to attend.

—The woman's auxiliary to the Salina County Medical Society was organized Jan. 16, 1934. The following officers were elected: president, Mrs. J. V. Ferrell, El Dorado; vice-president, Mrs. B. B. Hutton, Harrisburg; secretary, Mrs. B. E. Montgomery; treasurer, Mrs. J. H. Gregory, El Dorado.

—Dr. Plinn F. Morse of Detroit addressed the Sangamon County Medical Society on February 1. His subject was "Differential Diagnosis of Enlargements of the Spleen."

Doctor Geza deTakats of Chicago will address the Society on March 1, subject "Diagnosis and Management of Peripheral Vascular Disease."

Deaths and case reports of tuberculosis declined in 1933 compared with 1932. Tests concerning this disease made in the diagnostic laboratories of the State Department of Public Health increased by a wide margin, rising from 15,033 to 17,395. The proportion of positive tests in 1933 was also much greater than in 1932. Positive sputums rose from 17 to 18 per cent of all tests made. Positive bloods for the fixation test rose from 5 to 7 per cent. These statistics suggest the possibility of an increase in the prevalence of tuberculosis which has not yet been reflected in case and death records.

The proportion of positives to all blood tests made for syphilis remained the same, 17 per cent, but for tests of spinal fluids the proportion of positives went up from 15 per cent in 1932 to 19 per cent in 1933. However, a much fewer number of spinal fluid tests was made, the greater proportion of positives possibly reflecting a much more chary selection of patients for this test.

The number of animal heads examined for rabies increased substantially, from 505 to 611, and the proportion of positives went up from 35 per cent to 45 per cent. Tests made for both typhoid fever and diphtheria increased very noticeably in proportion to the number of cases reported while the percentage of positives declined. This indicates alertness with respect to these diseases. There were 171,638 tests of all kinds in 1933 with 15.2 per cent positive against 162,325 in 1932 with 15 per cent positive.

A total of 64 nurses employed through the CWA have been assigned to public health duty in various localities under the supervision of the State Department of Public Health in Illinois, Dr. Frank J. Jirka, State health director, announced. It is anticipated that this number will be increased to 100 or more in the near future. For the present, the efforts of these nurses will be concentrated on promoting immunization against diphtheria, smallpox and typhoid fever. Over 325 applications have been filed for positions by unemployed nurses. Out of that number 133 have been approved for public health service and 64 of these have been assigned to duty.

At a recent meeting of the Abraham Lincoln Council of the Boy Scouts of America a silver beaver, emblem of outstanding service in boy scouting, was awarded to Dr. A. C. Baxter of Springfield. The silver beaver is the highest award in boy scout work and is granted only by the National Council of Boy Scouts of America. Dr. Baxter has given 1,142 merit badge examinations to boy scouts and has been prominently identified with the boy scout movement since its inception in central Illinois.

Deaths

ANTHONY BALCERZAK, Chicago; Medical College, Chicago, 1909; a Fellow, A. M. A.; aged 61; died suddenly, Dec. 2, 1933.

WILLIAM STOCKTON BLUE, Ottawa, Ill.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; veteran of the Spanish-American War; aged 55; died, Dec. 24, 1933, in the Edward Hines, Jr., Hospital, Hines, Ill., of chronic myocarditis and coronary occlusion.

WILLIAM B. BUCHANAN, Chicago; Jenner Medical College, Chicago, 1908; aged 55; died, Sept. 9, 1933, of heart disease.

JAMES JOSEPH COLE, Chicago; Northwestern University Medical School, Chicago, 1903; aged 55; died, Dec. 15, 1933, of endocarditis.

GEORGE HOFFMAN, Chester, Illinois; St. Louis College of Physicians and Surgeons, 1896; a Fellow, A. M. A.; Prison Physician for many years; aged 62; died, January 10, from dilitation of the heart due to chronic myocarditis.

CARL W. KIMERY, Lerna, Ill.; Barnes Medical College, St. Louis, 1898; aged 64; died, Nov. 24, 1933, in the State Hospital, Jacksonville, of carcinoma of the liver.

AUGUST HENRY MALM, Princeton, Ill.; Barnes Medical College, St. Louis, 1895; since 1904 county coroner; aged 64; was found dead, Dec. 4, 1933, of heart disease.

JOSEPH MARZANO, Chicago; Loyola University School of Medicine, Chicago, 1931; member of the Illinois State Medical Society; aged 25; died, Dec. 21, 1933, of pneumonia.

JOHN DELBERT NICHOLS, Mooseheart, Ill.; Medical College of Indiana, Indianapolis, 1893, a Fellow, A. M. A.; medical director of the Mooseheart Hospital; aged 63; died, January 3, of pneumonia.

LYNN CECIL OLMSTEAD, Chicago; Bennett Medical College, Chicago, 1912; aged 43; died, Dec. 16, 1933, of cerebral embolism.

EDWARD PEARCE, Marshall, Ill.; Chicago Medical College, 1878; aged 83; died, Nov. 21, 1933, of arteriosclerosis.

CLIFFORD EARLE STECKBAUER, Chicago; University of Illinois College of Medicine, Chicago, 1927; a Fellow, A. M. A.; on the staff of the Illinois Eye and Ear Infirmary; aged 35; died, Dec. 28, 1933, of a self inflicted bullet wound.

ROYAL THARP, East St. Louis, Ill.; St. Louis College of Physicians and Surgeons, 1906; a member of Illinois State Medical Society, aged 49; died, December 21, from injuries received in an automobile crash.

JOHN IGNATIUS URBAN, Chicago; Jenner Medical College, Chicago, 1917; on the staff of the Norwegian-American Hospital; aged 40; was found dead, Dec. 1, 1933, of an overdose of sleeping potion.

DAVID EARL YANTIS, Urbana, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; a Fellow, A. M. A.; past president of the Champaign County Medical Society; aged 63; died, Dec. 11, 1933, in the Carle Memorial Hospital, of diabetes mellitus.

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